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New records for the Western Balkans cranefly fauna (Diptera, Tipuloidea) with the description of a new *Baeoura* Alexander (Diptera, Limoniidae)

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Abstract

The cranefly (Tipuloidea) fauna of the Western Balkans is still poorly known. In this study, occurrence data of 77 species is reported, of which two species are newly recorded for Albania, eight species for Bosnia and Herzegovina, twelve for Croatia, and seven for Slovenia, respectively. A new species, *Baeoura neretvaensis* Kolcsár & d'Oliveira, **sp. nov.** is described from Bosnia and Herzegovina, Montenegro, and Slovenia. Images of the habitus, wing, and male and female terminalia of the new species are provided. Furthermore, images of male terminalia and wings of thirteen additional species are presented.

Keywords

New records, Pediciidae, taxonomy, terminalia, Tipulidae, wing

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Introduction

Craneflies (Tipuloidea) are one of the most species-rich Dipteran group both in Europe and worldwide and represent almost 10% of all known Diptera species worldwide (Evenhuis and Pape 2022; Oosterbroek 2023). At present, 1267 cranefly species belonging to four families (Cylindrotomidae, Limoniidae, Pediciidae, Tipulidae) are reported from Europe (Oosterbroek 2023). In the last decade, our knowledge of the distribution of European craneflies has increased, but nonetheless craneflies are still considered a poorly known insect group. Apart from a few better-studied countries, like the Czech Republic, Finland, or the United Kingdom, the fauna of many countries is still poorly investigated and it is relatively easy to find new or unreported cranefly species (Kolcsár et al. 2021, 2023).

The Western Balkans (Albania, Bosnia and Herzegovina, Croatia, Kosovo, Montenegro, North Macedonia, Slovenia, and Serbia) and within it the Dinaric Mountains are a biodiversity hotspot, especially regarding freshwater and underground taxa (Gaston and David 1994; Bănărescu 2004; Griffiths et al. 2004; Sket et al. 2004; Ivković and Plant 2015). The Dinaric Mountains are the longest uninterrupted karst area in Europe (Mihevc et al. 2010) with one of the most complex hydrological systems. The rivers and streams of Western Balkans are mostly in good or excellent condition and therefore the nickname of this area is "the Blue Heart of Europe" (https://www.balkanrivers.net/en). The Western Balkans are still unexplored and understudied (Kolcsár et al. 2023), especially when it comes to aquatic insect fauna. Therefore, there are many new described species in the last decade, especially regarding Diptera (e.g., Ivković et al. 2012; Kvifte et al. 2013; Pont and Ivković 2013; Andersen et al. 2016; Kvifte and Ivković 2018). For craneflies, the following publications have dealt with the Western Balkans fauna in the last decade: Bilalli et al. (2021), de Jong et al. (2021), Kolcsár et al. (2015a, b, 2017a, b, 2018a, b, 2023), Keresztes et al. (2018a, b), and Starý (2012).

In this paper, we present new records of Limoniidae, Pediciidae, and Tipulidae from the Western Balkans, and we describe a new *Baeoura* Alexander (Limoniidae) species collected along streams and rivers in Bosnia and Herzegovina, Montenegro, and Slovenia. We also present wing and terminalia photos of several species newly recorded from Croatia, Bosnia and Herzegovina, and Montenegro. All the specimens from the Plitvice Lakes were collected as a part of the project "Phenology of aquatic insects" at the National Park Plitvice Lakes, Croatia. Specimens collected from the Neretva River in Bosnia and Herzegovina for this study were collected during the Neretva Science Week 2022 organized by the Scientists for Balkan Rivers Network in July 2022, which forms part of the Blue Heart of Europe campaign.

Materials and methods

The specimens were collected using insect nets, aspirators, light traps, and pyramid emergence traps and are preserved in ethanol. The following format is used for the records collected with the pyramid emergence traps: date referring to the date when

traps were emptied after one moth run, trap number is given, e.g., "P1" is pyramid emergence trap number 1 (see Kolcsár et al. 2015a). Description of body coloration based on specimens stored in ethanol. The genital structures were studied using a Zeiss Stemi 508 stereomicroscope and an Olympus CX33 microscope equipped with Canon Kiss M digital camera. Layer photos were combined using Zerene Stacker software. General morphological terminology in this study follows Cumming and Wood (2017) and Ribeiro (2008) in case of male terminalia.

Specimens from the following depositories were examined:

CKLP Private collection of L.-P. Kolcsár;
PCCQ Private Collection of C. Quindroit, Angers, France;
PCJS Private Collection of J. Starý, Olomouc, Czechia;
PCMCO Private Collection of M.C. d'Oliveira, Haarlem, The Netherlands;
SMOC Silesian Museum, Opava, Czech Republic;
UZC Collection of M. Ivković at University of Zagreb.

Results

Taxonomic treatment

Genus *Baeoura* Alexander, 1924

Type species. *Erioptera nigrolatera* Alexander, 1920 by original designation.

Remarks. *Baeoura* is a species rich genus, including 69 recognized species, prior to this article. The majority of the species is known from the Oriental region (43 species), but the genus also occurs in the Afrotropics (11 species), the Palearctic (4 species in Eastern Palaearctic and 10 species in Western Palaearctic) and one species from the Neotropics (Oosterbroek 2023). Recently two new species were described from the Western Palaearctic, *B. staryi* Driauach & Belqat, 2015 from Morocco and *B. rotherayi* Hancock, 2020 from Spain.

Baeoura neretvaensis Kolcsár & d'Oliveira, sp. nov.

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Figs 1–5

Type material. ***Holotype.*** **Bosnia and Herzegovina** • male; Ulog, Neretva River at Ulog Camp site; alt. 650 m; 43.41714°N, 18.31205°E; 28 Jun. 2022; W. Graf leg.; HOLOTYPE *Baeoura neretvaensis* Kolcsár & d'Oliveira, sp. nov. [red label]; SMOC.

Paratypes. **Bosnia and Herzegovina** • 3 females; Ulog, Neretva at Ulog Camp site; 43.41714°N, 18.31205°E; alt. 650 m; 28 June 2022; leg. W. Graf; SMOC • 2 males, 2 females; Krupac, Krupac Confluence to Neretva River; 43.32942°N, 18.42574°E; alt. 775 m; 29 June 2022; leg. M. Ivković; 1 male in UZC, 1 male and 2

females in SMOC • 1 female; Cerova, Cerova on Neretva; 43.37887°N, 18.35621°E; alt. 695 m; 30 June 2022; leg. M. Ivković; SMOC • 6 males, 13 females; Ulog, Ulog on Neretva River; 43.42414°N, 18.30837°E; alt. 640 m; 29 June 2022; leg. W. Graf; 1 male and 1 female in PCJS; 4 males and 11 females in SMOC, 1 male and 1 female in CKLP. **Montenegro** • 1 female; Berane, on window in town; 42.8436°N, 19.8666°E; alt. 685 m; 07 July 2012; leg. M. Ivković; UZC. **Slovenia** • 2 females; Gorenjska, Juliske alpe, Gozd Martuljek, River Sava; in small woodland on the banks of river Sava; 46.483°N, 13.838°E; alt. 740 m; 20 August 2019; leg. M.C. d'Oliveira; PCMCO.

Diagnosis. General coloration dark brown, with lateral parts of thorax striped. Scutellum posterior margin whitish. Wing without any markings, hyaline. Gonocoxite long and narrow, without prominent dorsal lobe. Gonostylus very long, narrow, and strongly curved, with a long seta at tip and a flat, blade-like lobe at base. Aedeagal sheath large, strongly curved dorsally, laterally flattened, with a forked process at 3/5 of its length from the base. Female terminalia with a pair of finger-like lobes on sternite 8, longer than cercus or hypogynial valve. Genital chamber complex and strongly sclerotized, sternite 9 with a pair of triangular lobes on the posterior edge, and a pair of finger-like anterior invaginations.

Description. Male. Body length 5.5–6.5 mm, wing length 4.5–5.5 mm. General color dark brown, with lighter abdomen (Fig. 1A).

Head. Wider than long. Eyes small and dorsally widely separated, ~ 1/2 as wide as narrowest point between eyes (Fig. 1B); eyes also separated from each other ventrally too, ~ 1/2 of width of eye. Eyes small, separated dorsally and ventrally (Fig. 1B). Dorsal separation ~ 1/2 as wide as narrowest point between eyes (Fig. 1B), ventral separation ~ 1/2 of wide of eye. Vertex dark brown. Rostrum short, pale brown to brown. Palpus 5-segmented, uniformly brown, or slightly paler at apex; palpomeres 2–5 similar in size. Antenna ~ 2–2.5× longer than head, reaching beyond prescutum if bent backward (Fig. 1B, C). Scape brown, cylindrical 2–2.5× longer than wide; pedicel dark brown, shorter than scape, slightly enlarged, drop-shaped, 2× wider than first flagellomere. Flagellum 13-segmented, brown, first flagellomere drop-shaped, subsequent flagellomeres gradually decreasing in wide and increasing in length toward apical segment, last flagellomere cylindrical. Basal flagellomeres with 2–4 longest verticils on dorsal and lateral sides, start from flagellomere 5 with five or six verticils; length of verticils subequal to length of corresponding flagellomeres.

Thorax. Dark brown dorsally (Fig. 1B), lateral parts stripped (Fig. 1C), formed by lighter and darker parts. Cervical sclerite black, roughly angular with a long extension connecting to head. Pronotum flat, anterior part brown posterior part pale brown. Prescutum and anterior part of scutum dark brown with four broad, darker, less distinct, longitudinal stripes (probably more visible on dry specimens). Central two stripes are fused anteriorly on prescutum, stripes cease near transverse suture. Outer stripes start on sides of posterior scutum, ceasing directly at transverse suture. Posterior part of scutum brown, with two longitudinal darker patches, lateral corner of scutal lobe distinctly yellowish brown. Scutellum brown anteriorly, posterior margin conspicuously white. Mediotergite dark brown. Proepisternum yellowish, pleu-

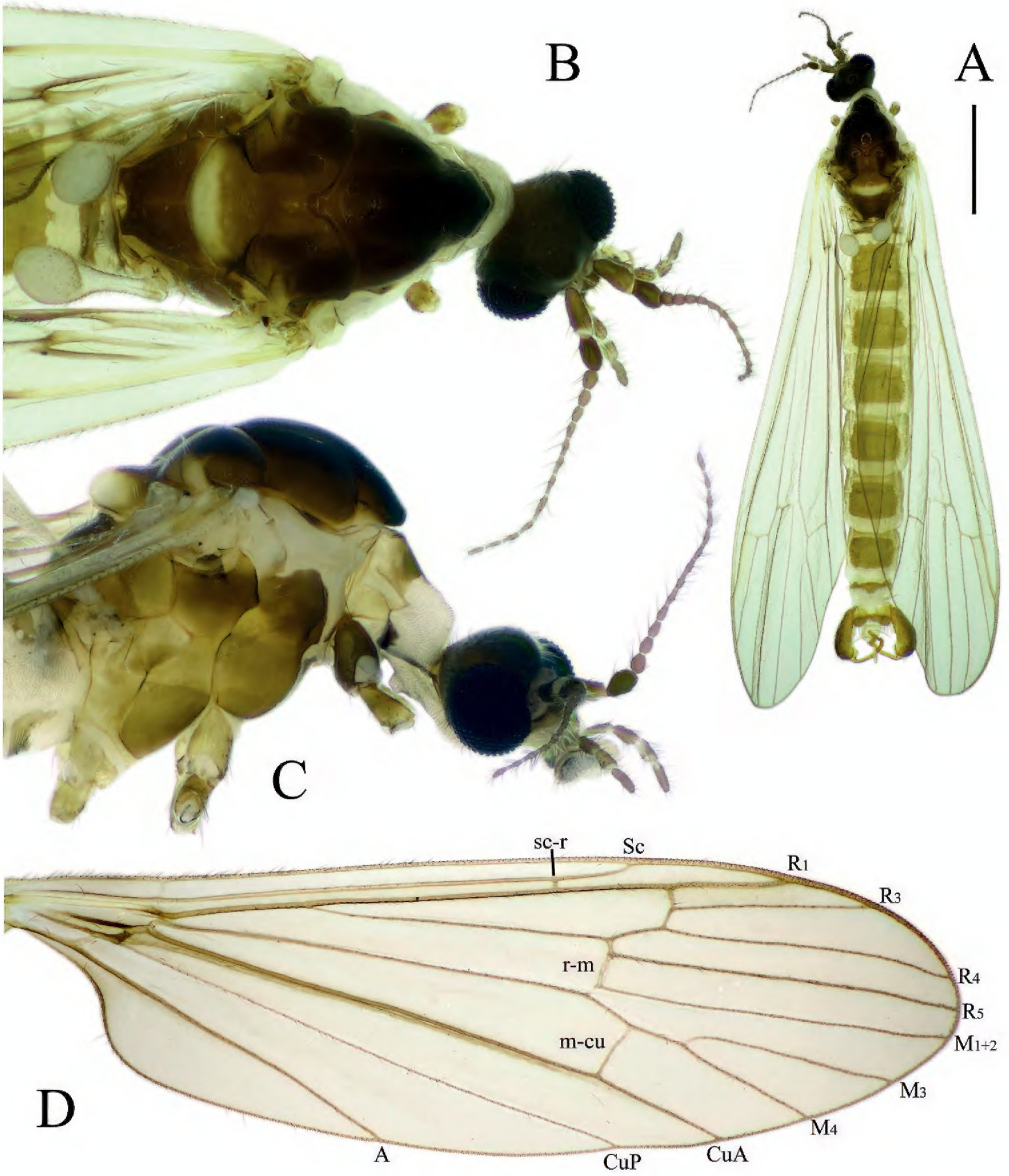

Figure 1. *Baeoura neretvaensis* sp. nov. Paratype: Ulog, Neretva at Ulog Camp site (SMOC) **A** habitus of male **B** head and thorax, dorsal view **C** head and thorax, ventral view **D** wing. Scale bar: 1 mm.

ron, and posterior basalare white to yellowish white. Coxa 1, anepisternum, and anepimeron dark brown. Trochanters 1, 2, katepisternum, and meron brown. Coxae 2, 3, trochanter 3, and metaepisternum light brown. Femora brown, slightly darkening towards apex; tibiae and tarsi brown. Wing yellowish tinged, 3–3.2× as long as wide (Fig. 1D). Stigma inconspicuous, whitish subhyaline with backlight. Vein Sc ending between level of forks of Rs and R2+3+4; crossvein sc-r situated on level of 4/5 of

Sc (measured from crossvein h); R2+3+4 short, ~ 1/5–1/4 length of R4; R2+3 ~ as long as R2, almost perpendicular; M1+2 slightly longer than R5; crossvein r-m, 2–4× longer than basal section of M1+2; cell dm opened, by atrophy of crossvein m-m; M4 ~ 1/4–1/3× longer than M3+4; cross vein m-cu ca. middle of M3+4, relatively long; wing margin between tips of M1+2 and M3 similar in length as between M3 and M4, and between M4 and CuA, and ca. 1/2 in length than distance between CuP and A, CuP and A almost straight. Halter whitish, ~ 0.5 mm (Fig. 1B).

Abdomen. Tergites and sternites uniformly pale brown; terminalia slightly darker (Fig. 1A).

Male terminalia (Fig. 2). Relatively large and prominent. Tergite 8 very narrow, posterior margin fits over anterior part of tergite 9 (Fig. 2C). Tergite 9 narrow, anterior part weakly sclerotized; posterior part with pair of round lobes, bearing long setae (Fig. 2A). Sternite 9 present as narrow band. Gonocoxite long, ~ 3× longer than wide at middle with short ventral lobe (Fig. 2B, C). Gonostylus narrow and very long, directed dorsally (Fig. 2C) and strongly curved (Fig. 2A, B); basally with a flat plate, whose margin round from posterior view (Fig. 2D); tip of gonostylus slightly widened, with a perpendicular, very long, subhyaline gonostylar seta (Fig. 2A). Aedeagal complex long, as long as gonocoxite (Fig. 2 A, B, C). Interbase flattened, blade-like, widely fused with mesal surface of gonocoxite (inseparable from gonocoxite without breaking it), ~ 1/3 length of gonocoxite (Fig. 2A); tip convex or slightly concave in lateral view (Fig. 2E); both interbases medially fused. Aedeagal sheath strongly curved dorsally, narrowest near base, gradually broadening distally, widest at 3/5 of its length, produced into a very long filament-like aedeagus and a dorsal forked extension (Fig. 2E). Ejaculatory apodeme short, rod-shaped, directed ventrally. Parameres short, slightly curved dorsally in later view (Fig. 2E) and directed laterally in ventral view.

Female. Body length 6.0–6.4 mm, wing length 7.4–8.1 mm. Generally resembling male, coloration sometimes somewhat paler.

Female terminalia (Fig. 3). Short and strongly modified. Tergite 9 ~ 2/3 of length and width of tergite 8 (Fig. 3A, C). Posterior margin of tergite 9 slightly concave. Tergite 10 and short, fleshy cerci fused, fused section sub-equal in length to tergite 9. Cerci appearing as two rounded lobes, with numerous setae at apex cerci widely separated with V-shape notch (Fig. 3A). Sternite 8 large, longer than tergites 8 and 9 together (Fig. 3C). Ventral margin of sternite 8 convex, posterolateral corner produced into finger-like process, covered with setae, and slanted upwards at ~ 45°, reaching further than cerci and hypogynial valves (Fig. 3C, D). Hypogynial valves short, subequal in length with tergite 10+cerci (Fig. 3A, C). Parts of genital chamber as genital fork, sternite 9 and genital opening fused and forming a complex strongly sclerotized structure (Fig. 3D). Area of genital opening pale, membranous, surrounded by more sclerotized sternite 9. Sternite 9 with numerous short setae. Posterior part of sternite 9 with a roughly triangular lobe between hypogynial valve and finger-like lobe of sternite 8, subequal in length to hypogynial valve. Anterior part of sternite 9 with a pair of invaginations lateral to genital fork, most probably holding the male gonostylus dur-

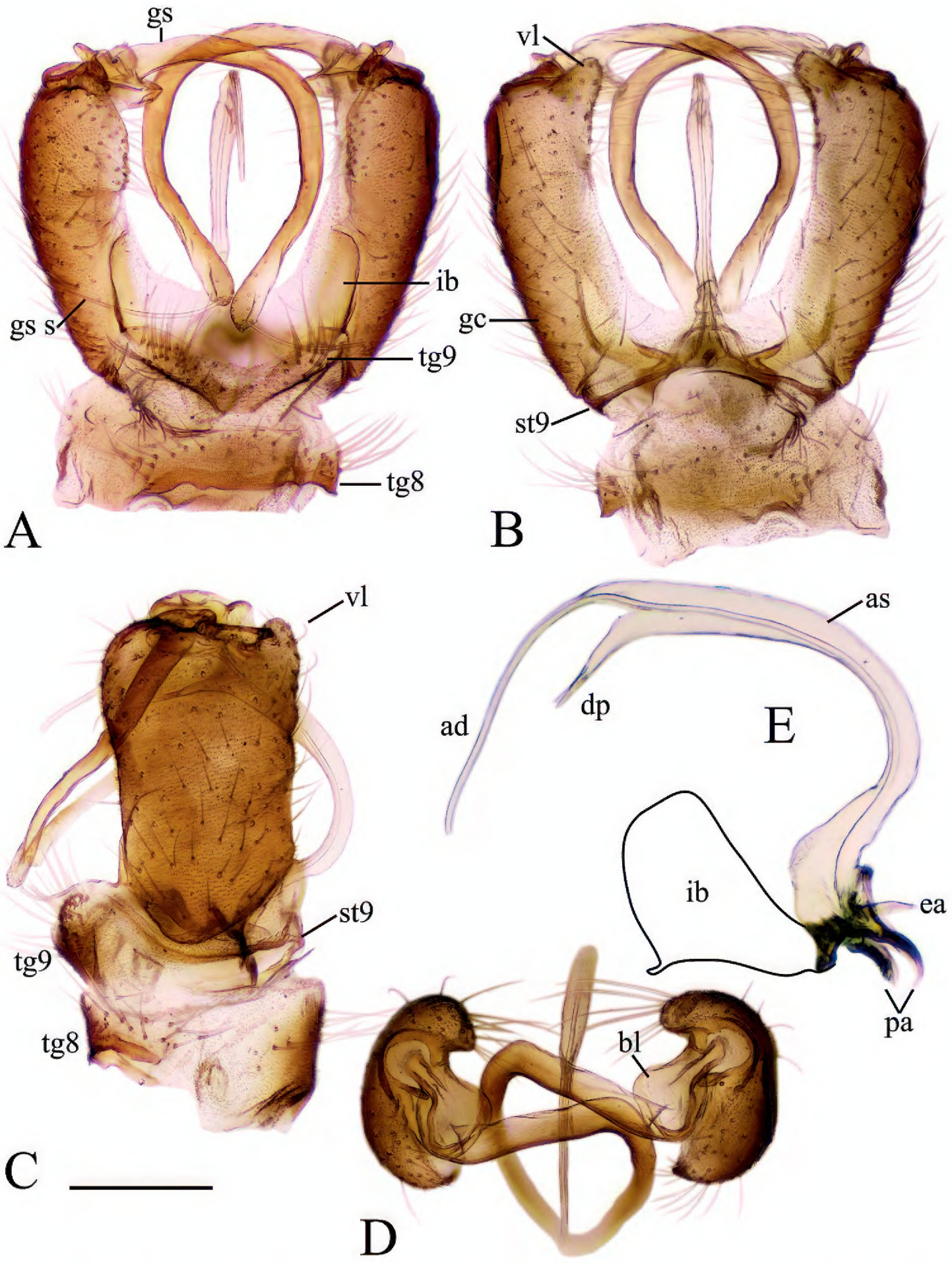

Figure 2. Male terminalia of *Baeoura neretvaensis* sp. nov. Paratype: Ulog, Ulog on Neretva River (SMOC) **A** dorsal view **B** ventral view **C** lateral view **D** caudal view **E** aedeagal complex, lateral view (interbase broken and illustrated with outline). Scale bar: 0.25 mm. Abbreviations: **ea** – ejaculatory apodeme; **ad** – aedeagus; **as** – aedeagal sheath; **bl** – basal lobe of gonostylus; **dp** – dorsal process of aedeagal sheath; **gc** – gonocoxite; **gs** – gonostylus; **gs s** – gonostylar seta; **ib** – interbase; **pa** – paramere; **st** – sternite; **tg** – tergite; **vl** – ventral lobe of gonostylus.

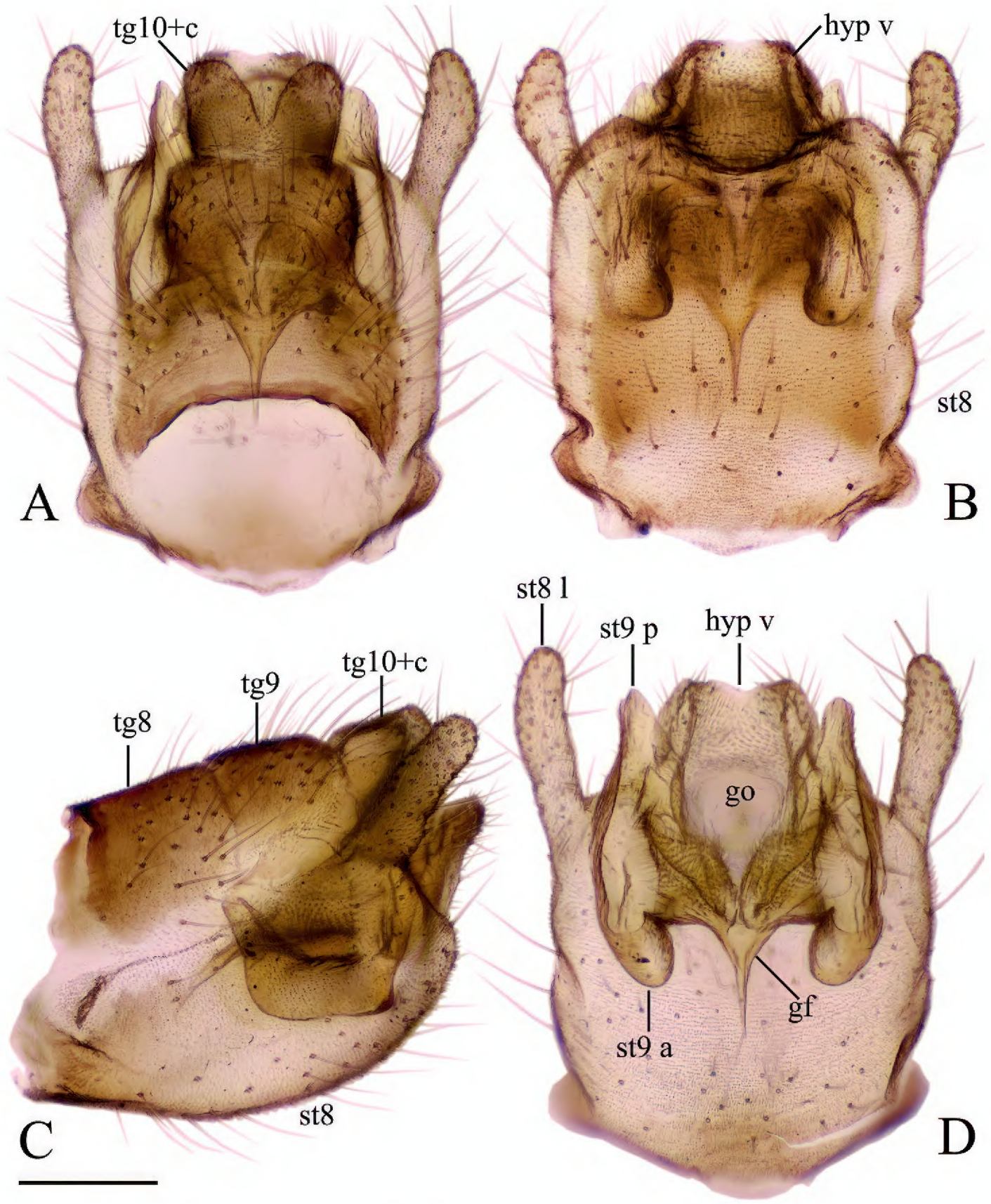

Figure 3. Female terminalia of *Baeoura neretvaensis* sp. nov. Paratype: Ulog, Ulog on Neretva River (SMOC) **A** dorsal view **B** ventral view **C** lateral view **D** sternite 8, hypogynial valvae, sternite 9 and genital fork, inner view. Scale bar: 0.2 mm. Abbr.: **hyp v** – hypogynial valve; **gf** – genital fork; **go** – genital opening; **st** – sternite; **st8 l** – lobe of sternite 8; **st9 a** – sternite 9 anterior invagination; **st9 p** – sternite 9 posterior lobe; **tg** – tergite, **tg10+c** – fused segment of tergite 10 and cerci.

ing the copulation. Genital fork narrowing to a point anteriorly, posteriorly fused with sternite 9 (Fig. 3D). Sternite 10 small, rounded.

Egg. Dark, large, sub-equal in length of tergite 9, tergite 10 and cerci combined; shape oval, cross section roughly triangular.

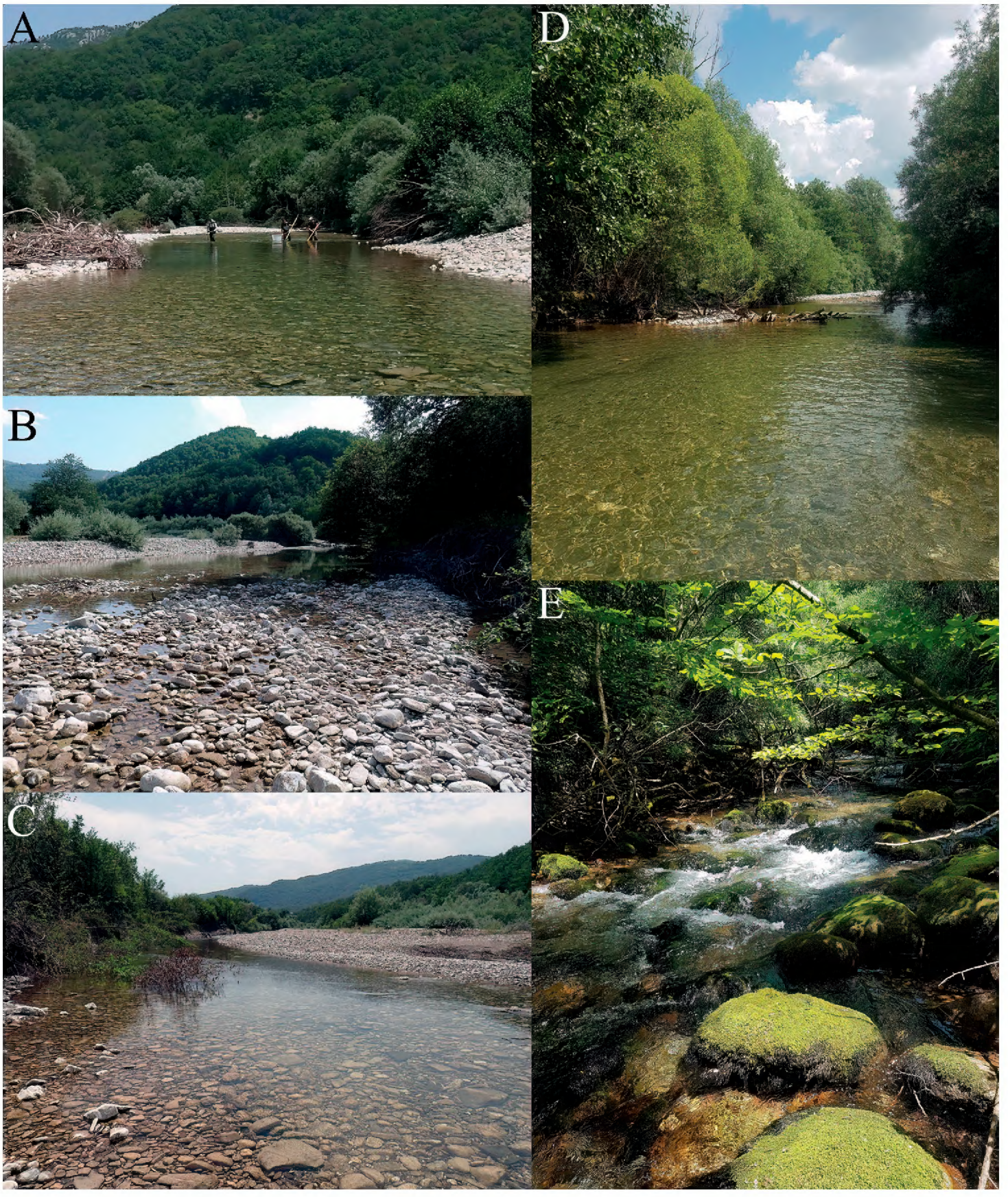

Figure 4. Neretva River and confluence **A–C** ulog on Neretva River; 43.42414°N, 18.30837°E **D** Cerova on Neretva, 43.37887°N, 18.35621°E **E** Krupac, confluence to the Neretva River, 43.32942°N, 18.42574°E. Photographs: Wolfram Graf (**A–C**), Marija Ivković (**D, E**).

Etymology. The name of this small and unique species refers to the Neretva River (Fig. 4), one of the last pristine European rivers, from where it was collected in high numbers.

Distribution. The new species is known from Bosnia and Herzegovina, Montenegro, and Slovenia (Fig. 5).

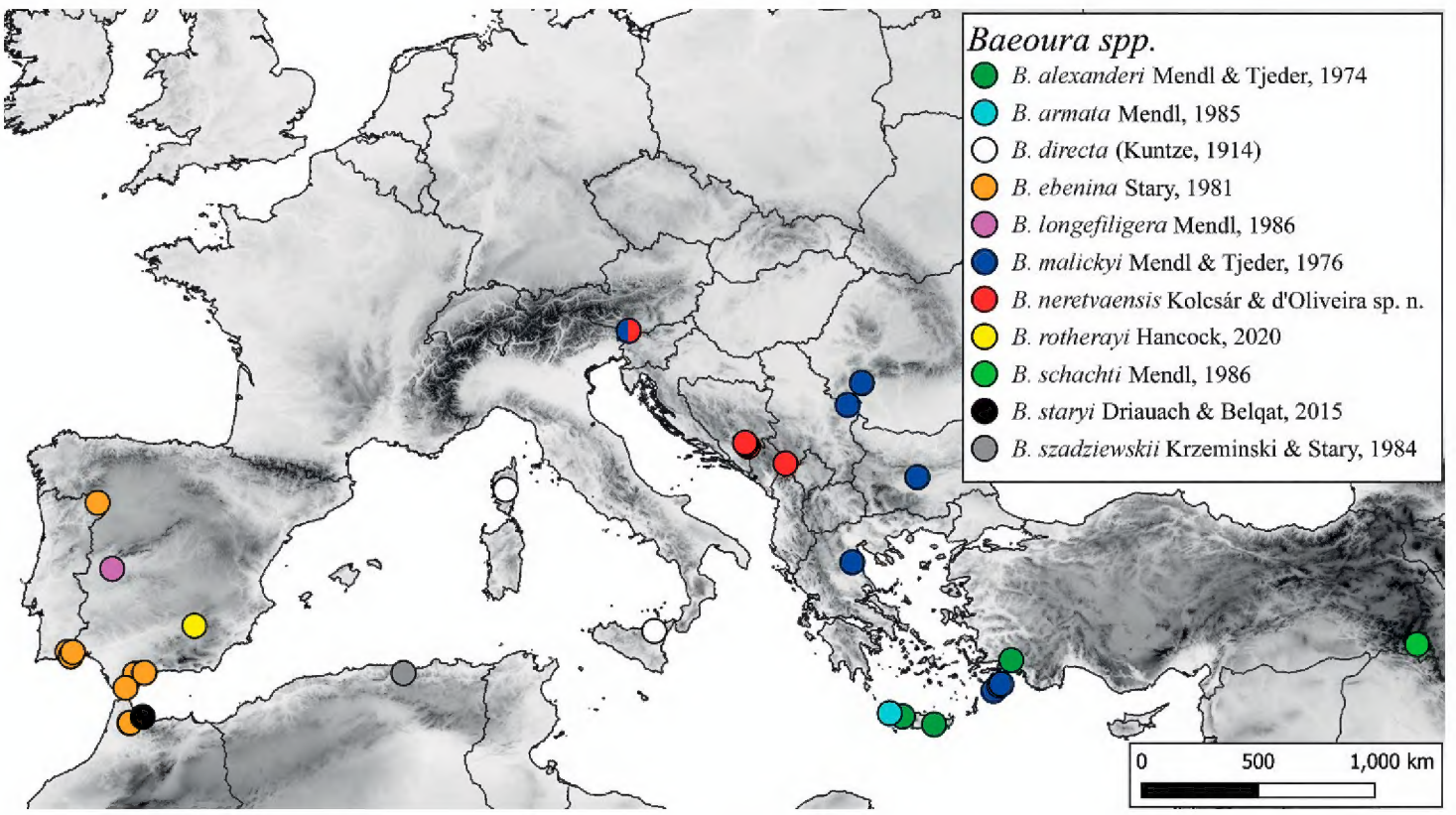
Baeoura spp.
B. alexanderi Mendl & Tjeder, 1974
B. armata Mendl, 1985
B. directa (Kuntze, 1914)
B. ebenina Stary, 1981
B. longefiligera Mendl, 1986
B. malickyi Mendl & Tjeder, 1976
B. neretvaensis Kolcsár & d'Oliveira sp. n.
B. rotherayi Hancock, 2020
B. schachti Mendl, 1986
B. staryi Driauach & Belqat, 2015
B. szadziewskii Krzeminski & Stary, 1984
0
500
1,000 km

Figure 5. Distribution of *Baeoura* Alexander species in the Western Palearctic.

Remarks. *Baeoura neretvaensis* sp. nov. is unique among the Western Palaearctic species. The closest related species is *Baeoura malickyi* Mendl & Tjeder, 1976, but *B. neretvaensis* can be differentiated from it by the long and slender gonostylus which terminates in a long seta (gonostylus more robust and flattened in *B. malickyi*, with only a short spine-like seta at tip), gonocoxite with a short, apical ventral lobe (long finger-like lobe in *B. malickyi*), a flat lobe at the base of the gonostylus present (no such lobe in *B. malickyi*) (Mendl and Tjeder 1976: figs 1–4). The female of the new species also differs from all described females by the presence of a pair of long finger-like lobes on sternite 8, which is longer than the hypogynial valve (a much shorter lobe is also present in female of *B. malickyi*; however, it is 1/2 as long as the hypogynial valve (Mendl and Tjeder 1976: figs 5–9).

Faunistic records

Limoniidae

1. *Antocha* (*Antocha*) *vitripennis* (Meigen, 1830)

Material examined. **Croatia** • 1 male; Ličko-Senjska county, Rastovača, Tufa barrier Kozjak-Milanovac, Plitvice Lakes; 44.89416°N, 15.60888°E; alt. 545 m; 28 June 2017; emergence trap, P1; CKLP • 1 male, same locality, 31 May 2016; emergence trap, P5; leg. M. Ivković; UZC. **Slovenia** • 1 male; Savinjska, Ljubno ob Savinji; 46.332°N, 14.839°E; alt. 490 m; 23 July 2022; leg. M.C. de Haas; PCMCO.

Comments. A common species. Larvae aquatic, associated with clear running water with rocky bottom.

2. *Antocha* (*Orimargula*) *alpigena* (Mik, 1883)
Fig. 6

Material examined. **Bosnia and Herzegovina** • 6 males, 3 females; Krupac, Krupac 100–600 m from Neretva River upstream; 43.33092°N, 18.42894°E; alt. 805 m; 29 June 2022; leg. M. Ivković; 3 males and 2 females in CKLP, 3 males and 1 female in UZC. **Slovenia** • 1 male; Gozd Martuljek, Martuljški slapovi; 46.473611°N, 13.829333°E; alt. 850 m; 5 July 2022; leg. C. Quindroit; PCCQ.

Comments. Much rarer species than *Antocha vitripennis*, adults usually found along small, fast-flowing mountain rivers, streams, and waterfalls (Starý 2009). First record from Bosnia and Herzegovina.

3. *Atypophthalmus* (*Microlimonia*) *machidai* (Alexander, 1921)

Material examined. **Slovenia** • 1 male; Krma Valley; 46.370556°N, 13.88916°E; alt. 900 m; 6 July 2022; leg. C. Quindroit; PCCQ.

Comments. A widely distributed species, known from the Palearctic and Oriental regions. It is relatively rare in Europe, and recently reported from Slovenia (Kolcsár et al. 2021).

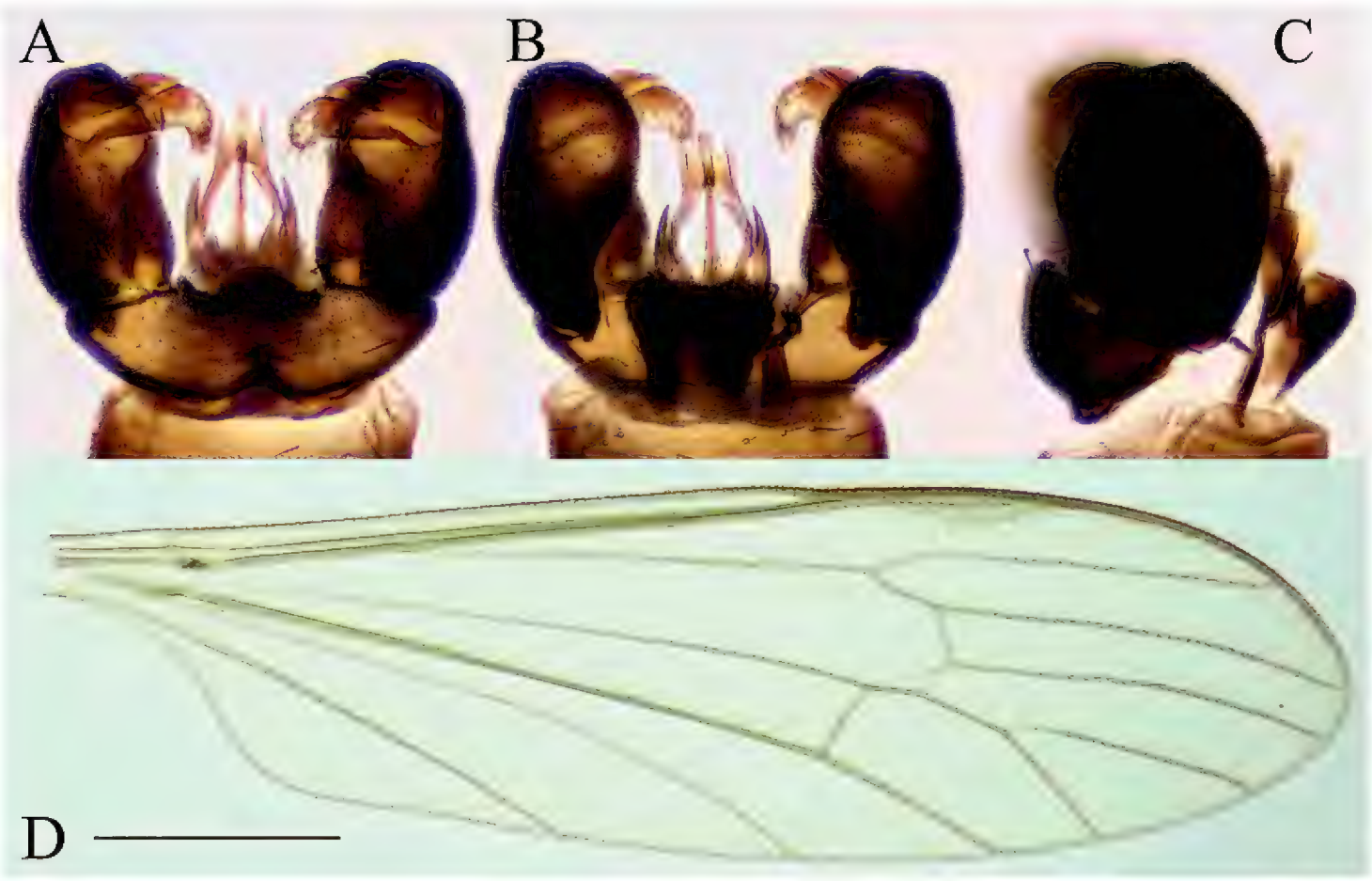

Figure 6. *Antocha* (*Orimargula*) *alpigena*, specimen: Bosnia and Herzegovina, Krupac, Krupac 100–600 m from Neretva River upstream (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

4. *Austrolimnophila* (*Austrolimnophila*) *ochracea* (Meigen, 1804)

Material examined. **Slovenia** • 1 male; Ljubljana, castle; 46.048°N, 14.50977°E; alt. 340 m; 30 June 2022; leg. C. Quindroit; PCCQ.

Comments. A common and widespread species in the Western Palaearctic.

5. *Dicranomyia* (*Dicranomyia*) *chorea* (Meigen, 1818)

Fig. 7

Material examined. **Croatia** • 1 male; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 31 August 2015; emergence trap, P5 • 1 male, same locality, 31 October 2016; emergence trap, P6 • 1 male, same locality, 31 August 2021; emergence trap, P5; leg. M. Ivković; UZC • 1 male; Ličko-Senjska county, Rastovača, Tufa barrier Kozjak-Milanovac, Plitvice Lakes; 44.89416°N, 15.60888°E; alt. 545 m; 27 July 2017; emergence trap, P3; leg. M. Ivković; CKLP • 1 male, same locality; 28 June 2017; emergence trap, P1 • 2 males, 2 females; same locality; 26 July 2020; emergence trap, P1 • 7 males, 2 females; same locality; 28 June 2020; emergence trap, P1 • 2 males, 1 female; same locality; 31 August 2021; emergence trap, P1; leg. M. Ivković; CKLP.

Comments. A very common and widespread species. Coloration of the specimens very variable from almost fully yellow to dark brown. All specimens examined are yellow.

6. *Dicranomyia* (*Dicranomyia*) *conchifera* (Strobl, 1900)

Fig. 8

Material examined. **Croatia** • 1 male, 1 female; Ličko-Senjska county, Rastovača, Tufa barrier Kozjak-Milanovac, Plitvice Lakes; 44.89416°N, 15.60888°E; alt. 545 m; 30 June 2019; emergence trap, P3 • 4 males, 1 female; same locality; 28 May 2020; emergence trap, P3 • 1 female; same locality; 28 June 2020; emergence trap, P3 • 1 male, 1 female; same locality; 30 June 2021; emergence trap, P1 • 2 males, 4 females; same locality; 30 June 2021; emergence trap, P3; leg. M. Ivković; 2 males in UZC, other specimens in CKLP.

Comments. A rare and poorly known species. In the Balkans it is recorded from Albania, Bulgaria, Greece, North Macedonia, Serbia, and Slovenia. First records from Croatia.

7. *Dicranomyia* (*Dicranomyia*) *didyma* (Meigen, 1804)

Material examined. **Bosnia and Herzegovina** • 1 male, Izvor Ribnik; 44.40222°N, 16.80055°E; alt. 308 m; 24 April 2006; leg. M. Ivković; CKLP. **Croatia** • 1 male, 1 female; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 30 June 2015; emergence trap, P5 • 1 female;

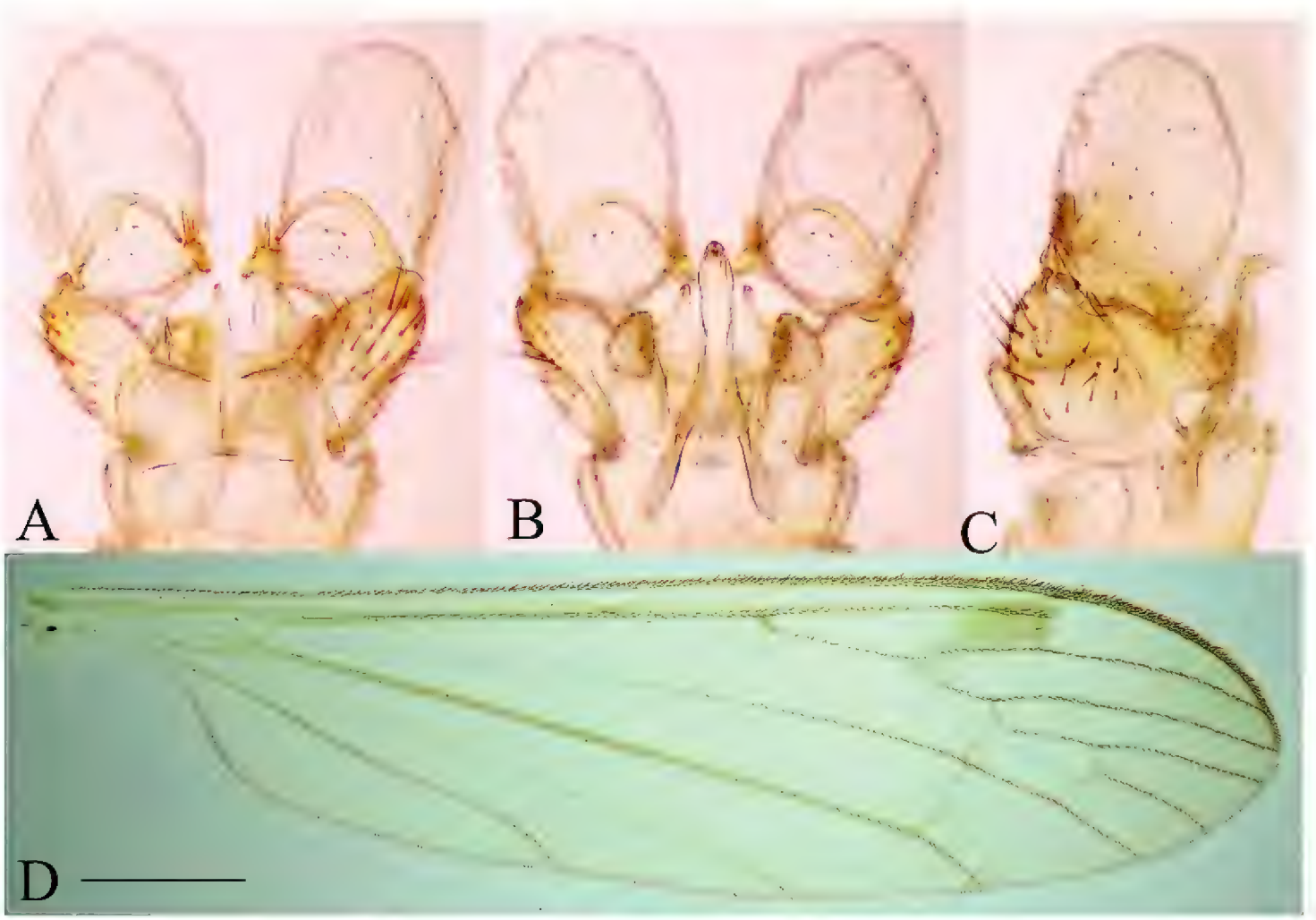

Figure 7. *Dicranomyia* (*Dicranomyia*) *chorea*, specimen: Croatia, spring of Bijela rijeka, Plitvice Lakes (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

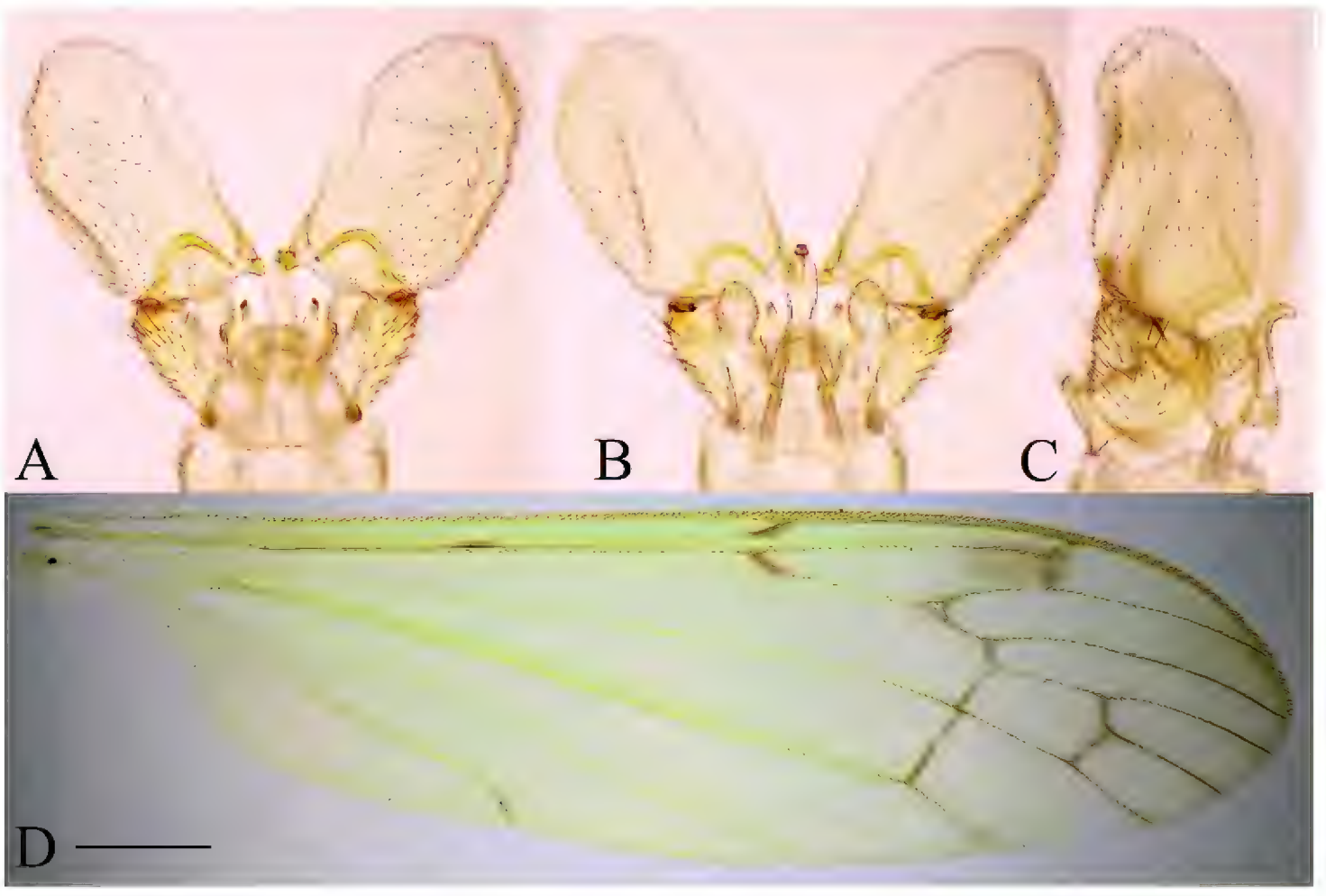

Figure 8. *Dicranomyia* (*Dicranomyia*) *conchifera*, specimen: Croatia, Tufa barrier Kozjak-Milanovac, Plitvice Lakes (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

same locality; 27 July 2015; emergence trap, P5 • 13 females; same locality; 31 August 2015; emergence trap, P5 • 1 male, 7 females; same locality; 30 September 2015; emergence trap, P5 • 12 males, 6 females; same locality; 31 August 2016; emergence trap, P5 • 5 males, 3 females; same locality; 29 September 2016; emergence trap, P5 • 8 females; same locality; 28 June 2017; emergence trap, P5 • 7 males; same locality; 28 June 2017; emergence trap, P5 • 1 male; same locality; 28 June 2017; emergence trap, P6 • 3 males, 6 females; same locality; 27 July 2017; emergence trap, P5 • 4 males, 1 female; same locality; 31 August 2017; emergence trap, P5 • 1 male; same locality; 29 September 2017; emergence trap, P5 • 1 male, 1 female; same locality; 26 July 2018; emergence trap, P5 • 1 male, 1 female; same locality; 31 August 2018; emergence trap, P5 • 1 female; same locality; 31 August 2018; emergence trap, P6 • 6 males, 1 female; same locality; 31 August 2018; emergence trap, P5 • 2 males, 1 female; same locality; 30 September 2018; emergence trap, P5 • 1 male, 1 female; same locality; 30 June 2019; emergence trap, P5 • 2 males; same locality; 30 June 2019; emergence trap, P5 • 3 males, 5 females; same locality; 27 July 2019; emergence trap, P5 • 1 female; same locality; 30 August 2019; emergence trap, P4 • 2 males, 3 females; same locality; 30 August 2019; emergence trap, P5 • 6 males, 1 female; same locality; 30 September 2019; emergence trap, P5 • 1 male, 1 female; same locality; 29 October 2019; emergence trap, P5 • 2 females; same locality; 26 July 2020; emergence trap, P5 • 1 male; same locality; 29 September 2021; emergence trap, P5; leg. M. Ivković; CKLP • 1 female; Ličko-Senjska county, Plitvica Selo, Stream Plitvica, Plitvice Lakes; 44.90222°N, 15.6075°E; alt. 555 m; 25 July 2008; emergence trap, P6 • 1 female; same locality; 25 July 2008; emergence trap, P3; leg. M. Ivković; CKLP • 1 female; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 30 October 2014; emergence trap, P3; leg. M. Ivković; CKLP • 2 females; Ličko-Senjska county, Rastovača, Tufa barrier Kozjak-Milanovac, Plitvice Lakes; 44.89416°N, 15.60888°E; alt. 545 m; 30 June 2015; emergence trap, P3 • 5 males, 1 female; same locality; 31 May 2016; emergence trap, P3; leg. M. Ivković; CKLP • 5 males, 1 female; same locality; 31 May 2016; emergence trap, P3 • 1 male; same locality; 30 June 2016; emergence trap, P3 • 2 males, 2 females; same locality; 25 July 2016; emergence trap, P2 • 1 male; same locality; 25 July 2016; emergence trap, P5 • 1 male; same locality; 29 May 2018; emergence trap, P3 • 3 males, 6 females; same locality; 30 August 2019; emergence trap, P4; leg. M. Ivković; 2 males and 2 females in UZC, other specimens in CKLP.

Comments. A widely distributed species, associated with small rivers and streams. The most abundant species in the emergence trap samples from Croatia.

8. *Dicranomyia* (*Dicranomyia*) *imbecilla* Lackschewitz, 1941

Material examined. **Albania** • 1 male; Dibër, Fushë-Bulqizë; 41.5279°N, 20.2983°E; alt. 780 m; light trap; 26 July 2021; leg. A. de Ketelaere; PCMCO. **Slovenia** • 1 male; Gorenjska, Gozd Martuljek, Juliske alpe, River Sava; 46.483°N, 13.838°E; alt. 745 m;

light trap; leg. M.C. d'Oliveira; PCMCO • 1 male; Stara fužina, Mostnica river; 46.297889°N, 13.886389°E; alt. 600 m; 3 July 2022; leg. C. Quindroit; PCCQ.

Comments. A poorly known species, only recently reinstated as a valid species and probably a more widely distributed species than thought (Starý and Stubbs 2015). Here we present the first records from Albania and Slovenia.

9. *Dicranomyia* (*Dicranomyia*) *mitis* (Meigen, 1830)

Material examined. Croatia • 1 male, 1 female; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 30 June 2015; emergence trap, P5; leg. M. Ivković; CKLP.

Comments. Common species with a wide distribution across Europe.

10. *Dicranomyia* (*Dicranomyia*) *quadra* (Meigen, 1838)

Fig. 9

Material examined. Croatia • 1 male; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 28 June 2017; emergence trap, P3 • 2 males; same locality; 28 June 2017; emergence trap, P5 • 1 female; same locality; 28 June 2017; emergence trap, P6 • 1 male; same locality; 29 May 2018; emergence trap, P5 • 1 male; same locality; 29 May 2018; emergence trap, P4 • 1 female; same locality; 29 June 2018; emergence trap, P4 • 1 female; same locality; 30 June 2019; emergence trap, P5 • 2 males; same locality; 30 June 2019; emergence trap, P6 • 2 males, 1 female; same locality; 27 July 2019; emergence trap, P6 • 1 female; same locality; 27 July 2019; emergence trap, P4 • 2 males, 2 females; same locality; 28 May 2020; emergence trap, P6 • 1 male; same locality; 30 June 2021; emergence trap, P5 • 1 male; same locality; 30 June 2021; emergence trap, P6; leg. M. Ivković; CKLP • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 29 May 2021; emergence trap, P6; leg. M. Ivković; 2 males and 2 females in UZC, other specimens in CKLP.

Comments. A poorly known species and only recently reinstated as a valid species (Starý and Stubbs 2015). It is known from several countries from the Balkans, and we present the first records from Croatia.

11. *Dicranomyia* (*Melanolimonia*) *morio* (Fabricius, 1787)

Fig. 10

Material examined. Croatia • 1 female; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 30 August 2020; emergence trap, P4 • 5 males, 1 female; same locality; 28 September 2020; emergence trap, P5; leg. M. Ivković; 2 males in UZC, other specimens in CKLP.

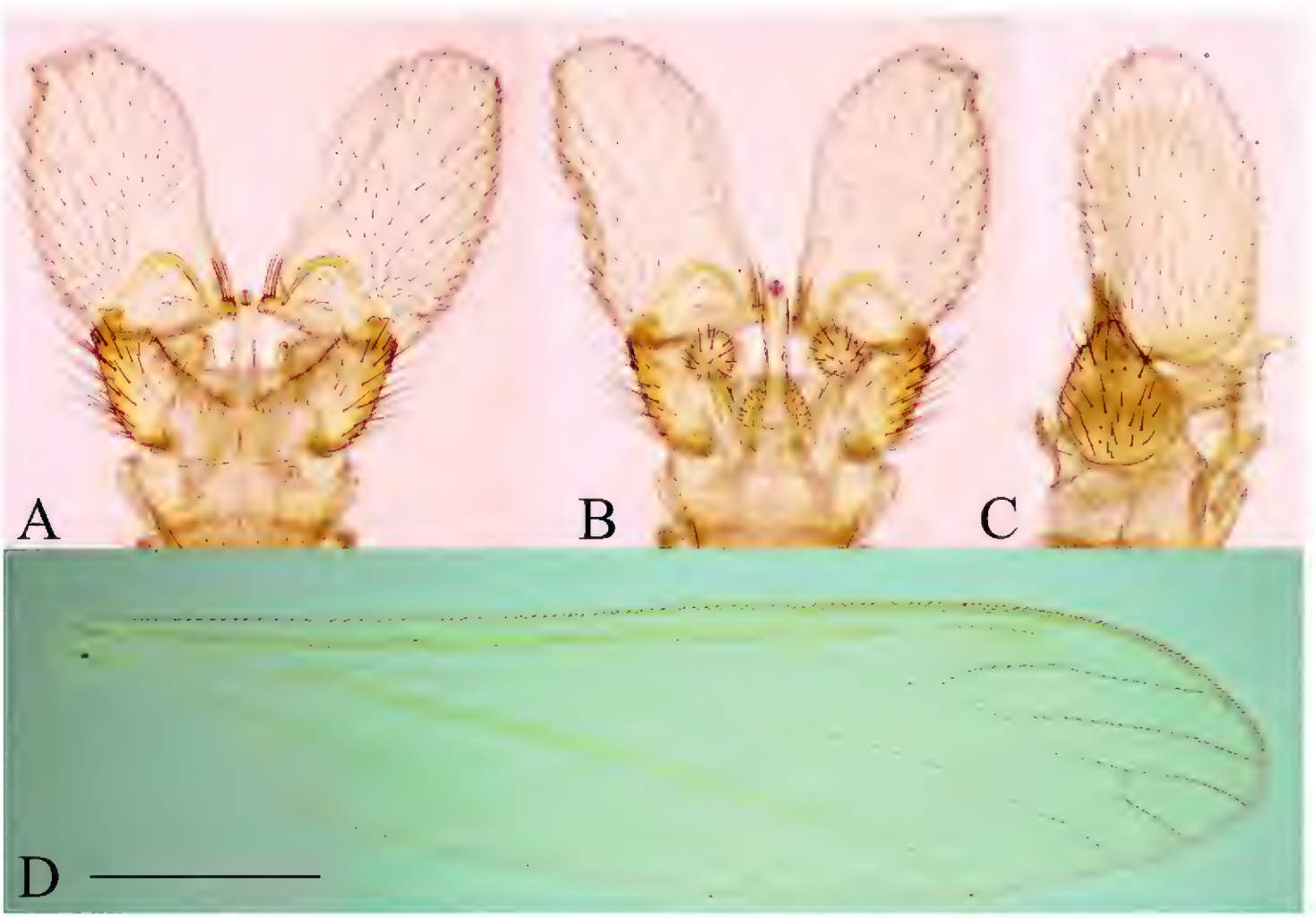

Figure 9. *Dicranomyia* (*Dicranomyia*) *quadra*, specimen: Croatia, spring of Bijela rijeka, Plitvice Lakes (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

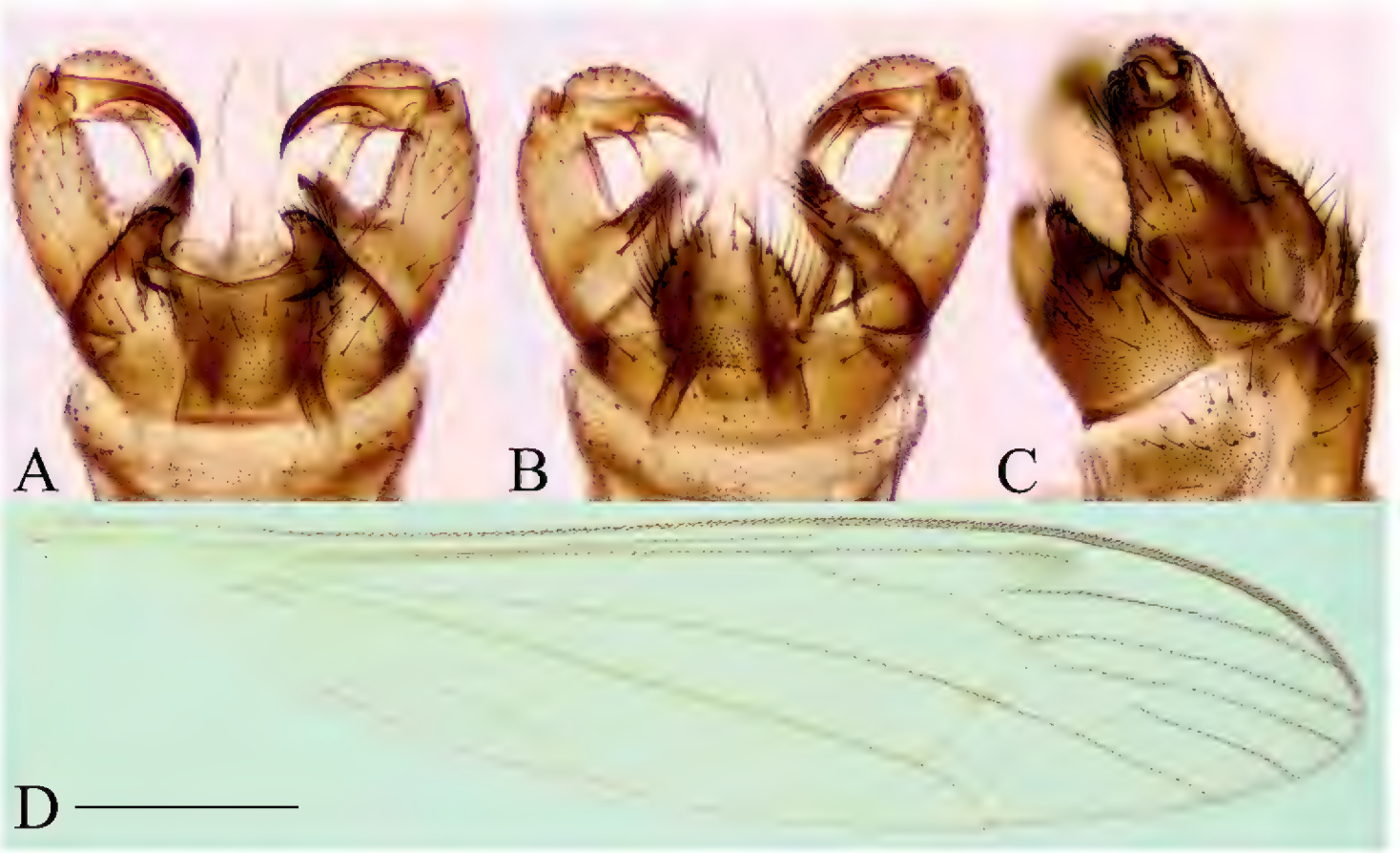

Figure 10. *Dicranomyia* (*Melanolimonia*) *morio*, specimen: Croatia, spring of Bijela rijeka, Plitvice Lakes (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

Comments. Widely distributed species in the Palearctic, adults usually found around springs and smaller streams, larvae probably live on moss covered wet rocks. First records from Croatia.

12. *Dicranomyia (Melanolimonia) stylifera* Lackschewitz, 1928

Material examined. **Slovenia** • 1 male; Mojstrana, Slap Peričnik; 46.439111°N, 13.894278°E; alt. 900 m; 05 july 2022; leg C. Quindroit; PCCQ.

Comments. A rare and poorly known species, associated with calcareous habitats (Salmela 2008; Stubbs 2021).

13. *Dicranomyia* (*Numantia*) *fusca* (Meigen, 1804)

Material examined. **Slovenia** • 2 males; Savinjska, Ljubno ob Savinji; 46.332°N, 14.839°E; alt. 490 m; 23 July 2022; leg. M.C. de Haas; PCMCO.

Comments. Common species and widely distributed in the Holarctic.

14. *Dicranomyia* (*Sivalimnobia*) *aquosa* Verrall, 1886

Material examined. **Slovenia** • 3 males, 1 female; Gozd Martuljek, Martuljški slapovi; 46.473611°N, 13.829333°E; alt. 850 m; 5 July 2022; leg. C. Quindroit; PCCQ • 1 male; Mojstrana, Slap Peričnik; 46.439111°N, 13.894278°E; alt. 900 m; 5 July 2022; leg C. Quindroit; PCCQ.

Comments. A rare species associated with hygropetric habitats, usually found around waterfalls. Larvae most probably live on the surface of permanently wet rocks (Stubbs 2021).

15. *Dicranophragma* (*Brachylimnophila*) *nemorale* (Meigen, 1818)

Material examined. **Croatia** • 2 males; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 29 September 2021; emergence trap, P6; leg. M. Ivković; CKLP • 1 male; Ličko-Senjska county, Rastovača, Tufa barrier Kozjak-Milanovac, Plitvice Lakes; 44.89416°N, 15.60888°E; alt. 545 m; 29 September 2017; emergence trap, P4; leg. M. Ivković; 1 male in UZC, other specimens in CKLP. **Slovenia** • 1 male; Stara fužina, Mostnica river; 46.297889°N, 13.886389°E; alt. 600 m; 3 July 2022; leg. C. Quindroit; PCCQ.

Comments. Common.

16. *Dicranoptycha fuscescens* (Schummel, 1829)

Material examined. **Slovenia** • 1 male; Bovec, junction Soča and Koritnica rivers; 46.330167°N, 13.577028°E; alt. 400 m; 7 July 2022; leg. C. Quindroit; PCCQ.

Comments. A common species with wide distribution range in the Palaearctic.

17. *Elliptera omissa* Schiner, 1863

Material examined. **Croatia** • 1 male; Primorsko-Goranska county, Gorski Kotar, Spring of River Kupa and just below the spring; 45.4919°N, 14.6925°E; alt. 756 m; 06 August 2021; leg. M. Ivković; CKLP. **Slovenia** • 1 male; Trenta, Soča source; 46.411972°N, 13.729583°E; alt. 950 m; 7 July 2022; leg. C. Quindroit; PCCQ.

Comments. A rare species, known only from a few European countries, recently reported from Croatia (Kolcsár et al. 2015a). The species is connected to hygropetric habitats, usually found around waterfalls and fast-flowing rocky mountain streams and rivers.

18. *Ellipteroides* (*Ellipteroides*) *lateralis* (Macquart, 1835)

Material examined. **Croatia** • 1 male; Ličko-Senjska county, Rastovača, Tufa barrier Kozjak-Milanovac, Plitvice Lakes; 44.89416°N, 15.60888°E; alt. 545 m; 29 May 2018; emergence trap, P6; leg. M. Ivković; CKLP.

Comments. Species usually found around streams and rivers with sandy sediments.

19. *Ellipteroides* (*Protogonomyia*) *alboscutellatus* (von Roser, 1840)

Fig. 11

Material examined. **Bosnia and Herzegovina** • 1 male, 1 female; Krupac, Krupac 100–600 m from Neretva River upstream; 43.33092°N, 18.42894°E; alt. 805 m; 29 June 2022; leg. M. Ivković; CKLP. **Slovenia** • 1 male, 2 females; Vintgar gorge; 46.393333°N, 14.086056°E; alt. 600 m; 1 July 2022; leg C. Quindroit; PCCQ • 5 males; Stara fužina, Mostnica river; 46.297889°N, 13.886389°E; alt. 600 m; 3 July 2022; leg. C. Quindroit; PCCQ.

Comments. First record from Bosnia and Herzegovina.

20. *Ellipteroides* (*Protogonomyia*) *limbatus* (von Roser, 1840)

Fig. 12

Material examined. **Bosnia and Herzegovina** • 2 females; Krupac, Krupac 100–600 m from Neretva River upstream; 43.33092°N, 18.42894°E; alt. 805 m; 29 June

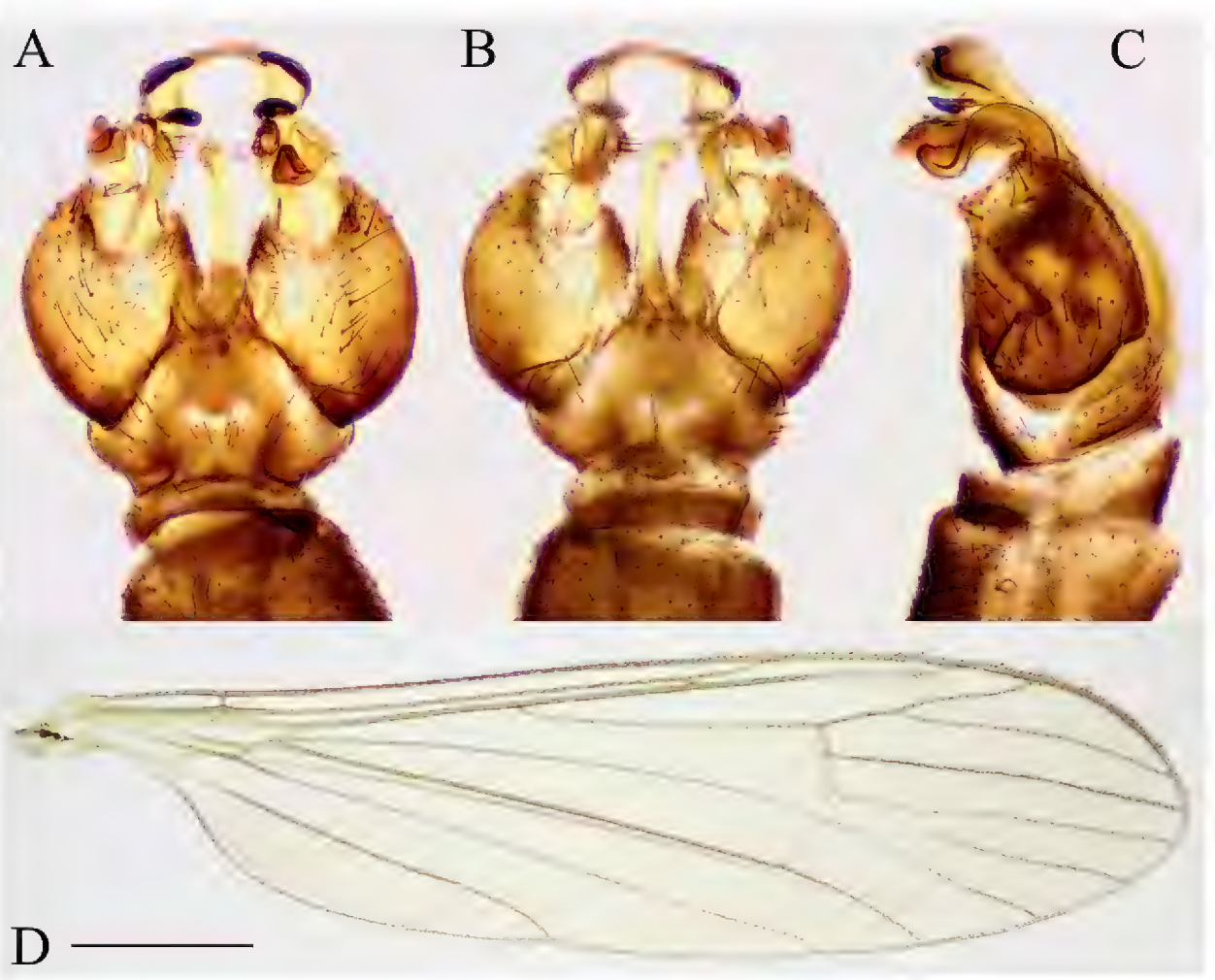

Figure 11. *Ellipteroides* (*Protogonomyia*) *alboscutellatus*, specimen: Bosnia and Herzegovina, Krupac, Krupac 100–600 m from Neretva River upstream (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

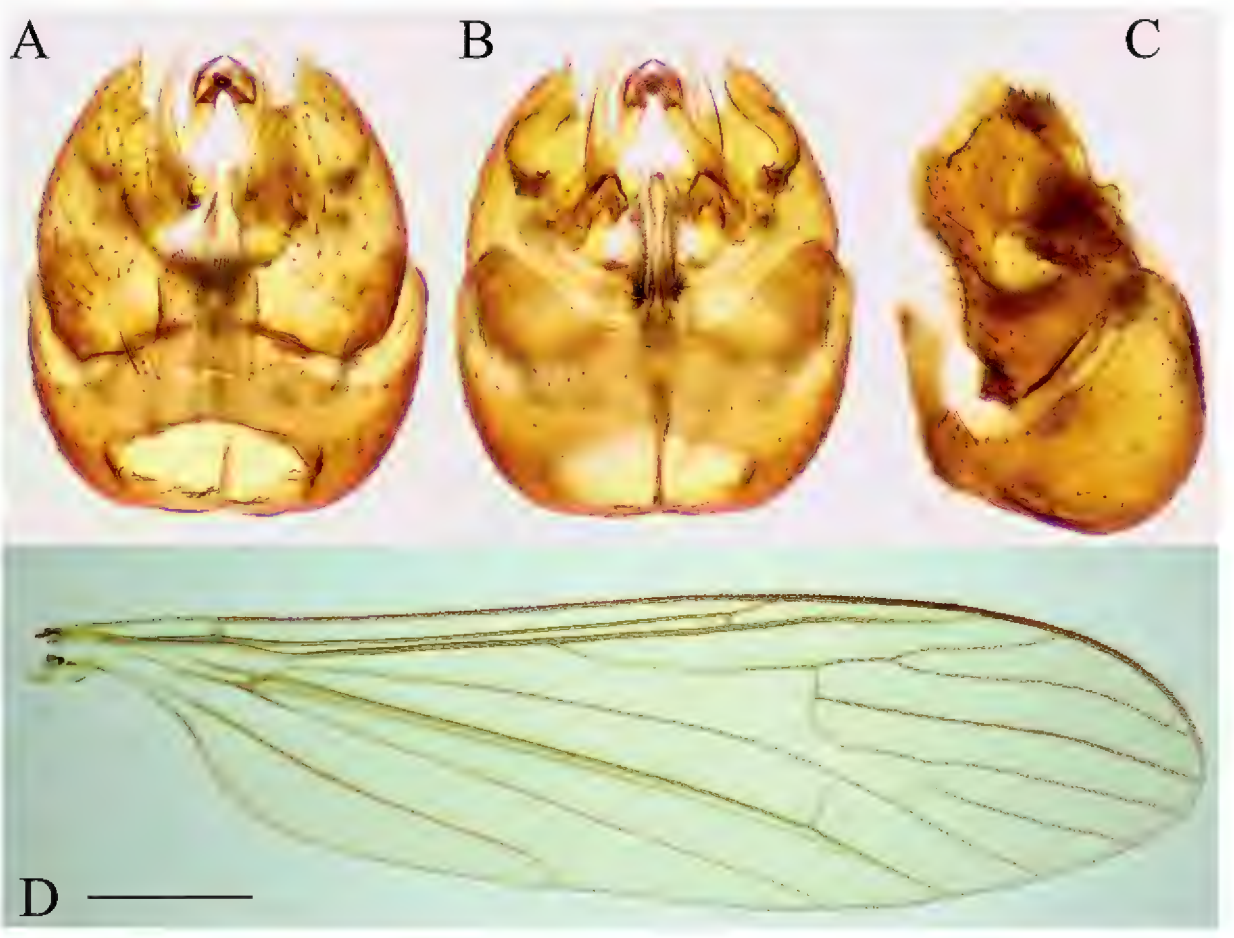

Figure 12. *Ellipteroides* (*Protogonomyia*) *limbatus*, specimen: Montenegro, mouth of stream Desna rijeka to River Mojanska Rijeka (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

2022; leg. M. Ivković; CKLP. **Montenegro** • 2 males; Mouth of Stream Desna rijeka to River Mojanska rijeka; 42.68888°N, 19.72777°E; alt. 925 m; 08 July 2012; leg. M. Ivković; CKLP • 1 male; River Murinska Rijeka; 42.6525°N, 19.88361°E; alt. 1000 m; 07 July 2012; leg. M. Ivković; 1 male and 1 female in UZC, other specimens in CKLP. **Slovenia** • 1 male, 1 female; Savinjska, Ljubno ob Savinji; 46.332°N, 14.839°E; alt. 490 m; 23 July 2022; leg. M.C. de Haas; PCMCO.

Comments. First record from Bosnia and Herzegovina.

21. *Eloeophila miliaria* (Egger, 1863)

Fig. 13

Material examined. **Bosnia and Herzegovina** • 1 male; Ulogski Buk, Ulogski Buk on Neretva; 43.40467°N, 18.32423°E; alt. 675 m; 01 July 2022; leg. M. Ivković; CKLP.

Comments. A relatively rare species, and only recently reported from Croatia (Kolcsár et al. 2015a); here we report the species for the first time from Bosnia and Herzegovina.

22. *Erioptera* (*Erioptera*) *lutea lutea* Meigen, 1804

Material examined. **Slovenia** • 1 male; Savinjska, Ljubno ob Savinji; 46.333°N, 14.8387°E; alt. 745 m; light trap; 20 August 2019; leg. M.C. d'Oliveira; PCMCO.

Comments. A common species with wide distribution range in the Palaearctic.

23. *Gonomyia* (*Prolipophleps*) *abbreviata* Loew, 1873

Material examined. **Slovenia** • 1 male; Savinjska, Ljubno ob Savinji; 46.332°N, 14.839°E; alt. 490 m; 22 July 2022; light trap; leg. M.C. de Haas; PCMCO.

Comments. A relatively rare and poorly known species with a wide distribution range from Iran to Great Britain; however, only with scattered records. First record from Slovenia.

24. *Helius* (*Helius*) *pallirostris* Edwards, 1921

Material examined. **Croatia** • 1 female; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 27 July 2019; emergence trap, P1; leg. M. Ivković; CKLP.

Comments. A relatively common species in Central Europe; however, this is the first record from Croatia and from the Western Balkans.

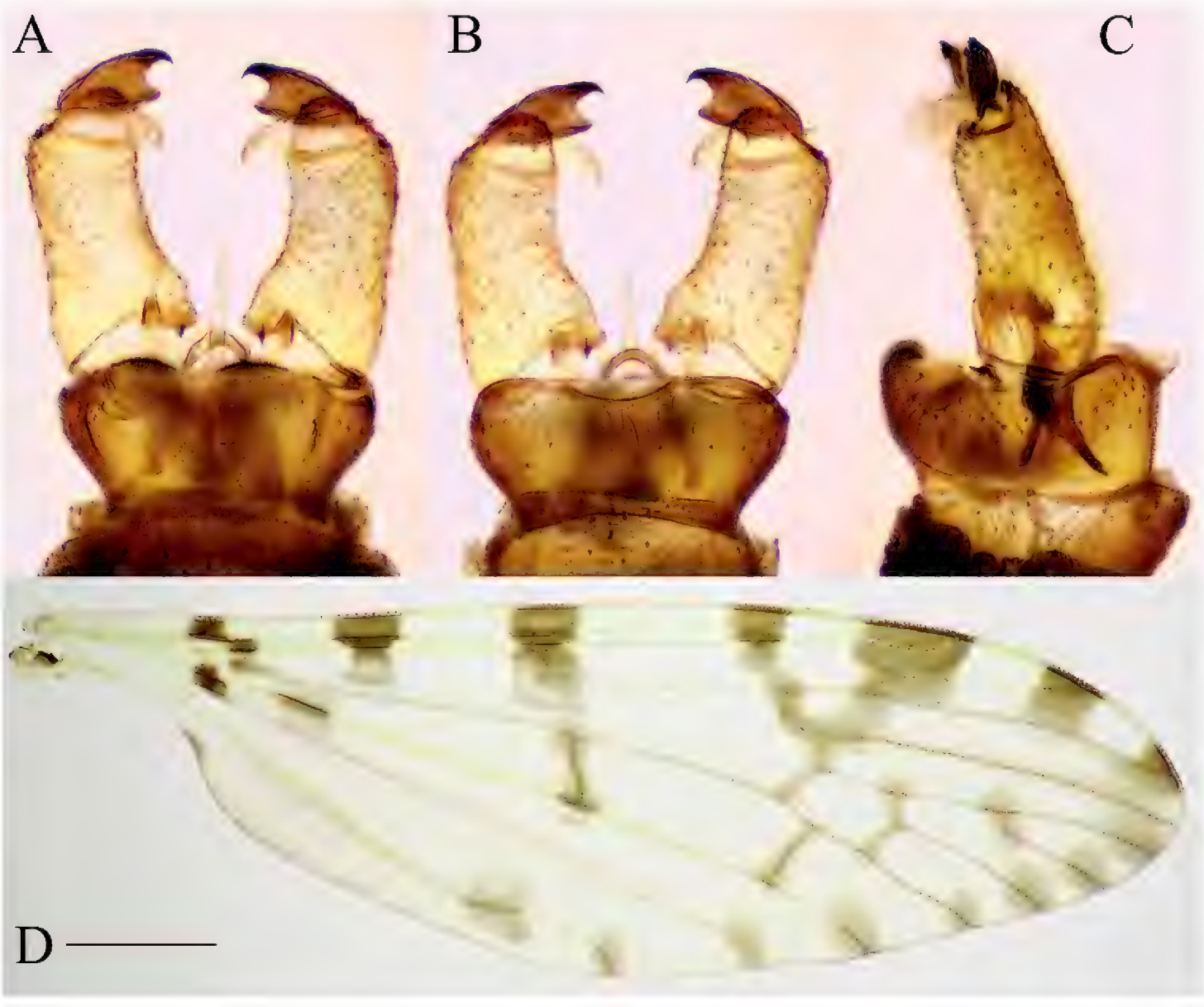

Figure 13. *Eloeophila miliaria*, specimen: Bosnia and Herzegovina, Ulogski Buk, Ulogski Buk on Neretva (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

25. *Hexatoma* (*Eriocera*) *chirothecata* (Scopoli, 1763)

Material examined. **Croatia** • 1 male; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 26 July 2020; emergence trap, P6; leg. M. Ivković; CKLP • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 25 July 2014; emergence trap, P2 • 2 males; same locality; 27 July 2015; emergence trap, P2 • 1 female; same locality; 27 July 2015; emergence trap, P7 • 3 females; same locality; 30 June 2021; emergence trap, P6 • 1 male, 1 female; same locality; 30 June 2021; emergence trap, P6 • 2 males; same locality; 31 August 2021; emergence trap, P3; leg. M. Ivković; 1 male and 1 female in UZC, other specimens in CKLP • 1 male; Ličko-Senjska county, Rastovača, Tufa barrier Kozjak-Milanovac, Plitvice Lakes; 44.89416°N, 15.60888°E; alt. 545 m; 30 August 2019; emergence trap, P5; leg. M. Ivković; CKLP. **Slovenia** • 1 female; Savinjska, Ljubno ob Savinji; 46.332°N, 14.839°E; alt. 490 m; 16 July 2022; light trap; leg. M.C. de Haas; PCMCO.

Comments. A poorly known species. It seems common in the Western Balkans, reported from all countries; however, it is relatively rare in other parts of Europe. The species seems to prefer small calcareous rivers and streams.

26. *Hexatoma* (*Hexatoma*) *bicolor* (Meigen, 1818)

Material examined. **Slovenia** • 1 male; Savinjska, Luče; 46.357°N, 14.753°E; alt. 515 m; 20 July 2022; leg. M.C. de Haas; PCMCO.

Comments. A poorly known species associated with streams and rivers with sandy or gravelly banks (Starý 2009).

27. *Idiocera* (*Euptilostena*) *jucunda* (Loew, 1873)

Fig. 14

Material examined. **Bosnia and Herzegovina** • 1 male, 4 females; Sutjeska, Jabučica Stream; 43.29°N, 18.6172°E; alt. 767 m; 04 July 2012; UV Lamp; leg. M. Ivković; CKLP • 1 male; Ulog, Neretva at Ulog Camp site; 43.41714°N, 18.31205°E; alt. 650 m; 28 June 2022; leg. W. Graf; CKLP. **Slovenia** • 1 male; Gorenjska, Gozd Martuljek, Juliske alpe, River Sava; 46.483°N, 13.838°E; alt. 745 m; 20 August 2019; light trap; leg. M.C. d'Oliveira; PCMCO.

Comments. A rare and poorly known species associated with mountain rivers and streams with sandy and gravelly banks (Starý 2009). We collected the species near similar habitats, with light traps. First records from Bosnia and Herzegovina.

28. *Idiocera* (*Idiocera*) *lackschewitzi* (Starý, 1977)

Fig. 15

Material examined. **Bosnia and Herzegovina** • 1 female; Sutjeska, Jabučica Stream; 43.29°N, 18.6172°E; alt. 767 m; 04 July 2012; leg. M. Ivković; CKLP • 1 male; Ulog, Neretva at Ulog Camp site; 43.41714°N, 18.31205°E; alt. 650 m; 28 June 2022; leg. W. Graf; CKLP.

Comments. A very rare species, only known from Albania, Greece, Italy (Sicily), and North Macedonia. First records from Bosnia and Herzegovina. Specimens collected along or near rivers with gravelly banks, usually together with *Idiocera jucunda*.

29. *Ilisia maculata* (Meigen, 1804)

Material examined. **Slovenia** • 1 male; Savinjska, Ljubno ob Savinji; 46.332°N, 14.839°E; alt. 490 m; 22 July 2022; light trap; leg. M.C. de Haas; PCMCO.

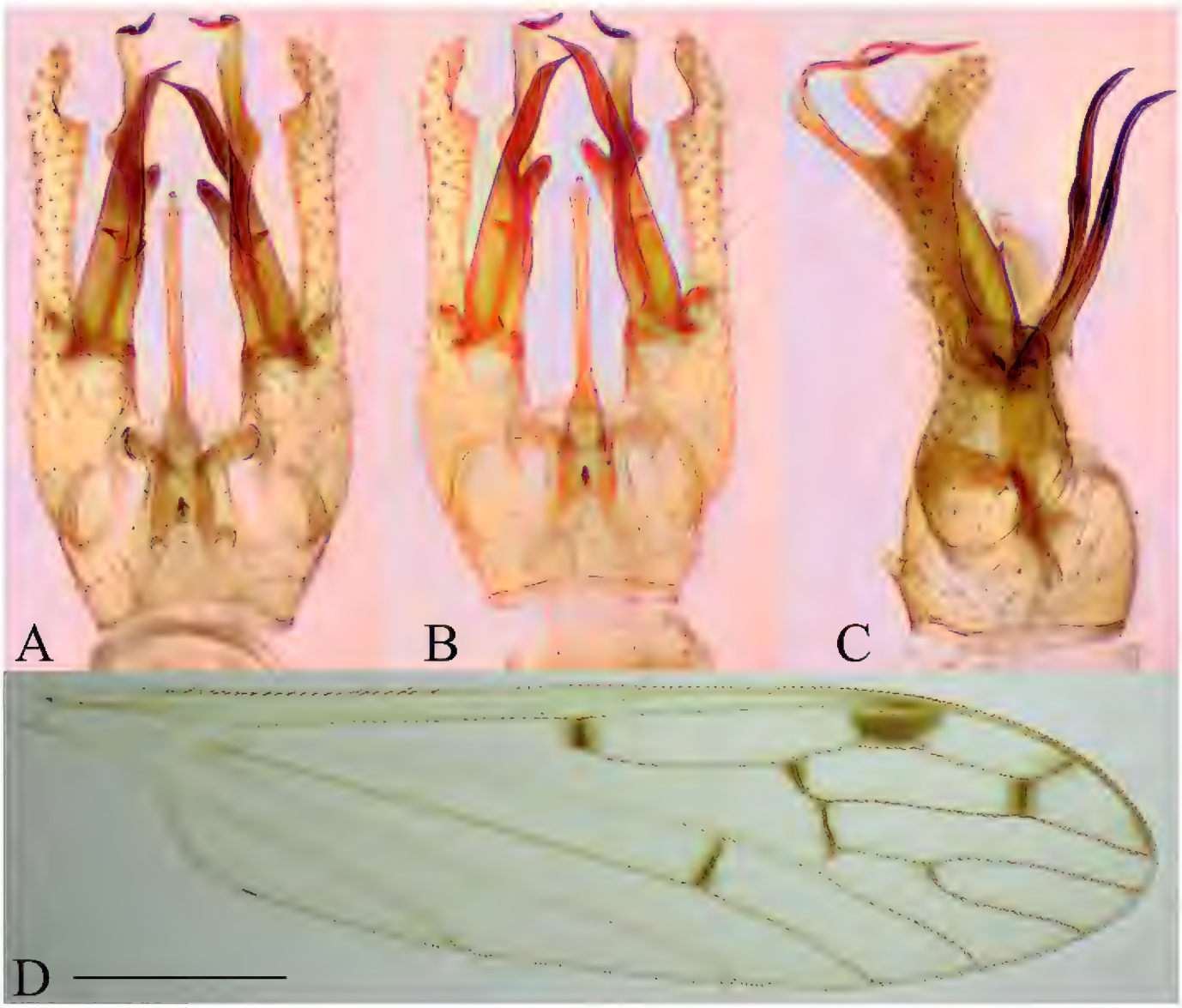

Figure 14. *Idiocera* (*Euptilostena*) *jucunda*, specimen: Bosnia and Herzegovina, Ulog, Neretva at Ulog Camp site (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

Comments. A common species, associated with rich organic muds (Podeniene 2009), and can be found around various water bodies. First record from Slovenia.

30. *Limonia nubeculosa* Meigen, 1804

Material examined. Croatia • 1 female; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 29 May 2018; emergence trap, P5; leg. M. Ivković; CKLP • 1 female; Zagreb, Stream Jelenovac; 45.82306°N, 15.95235°E; alt. 170 m; 10 April 2020; leg. M. Ivković (not stored)

Comments. A very common and widely distributed species.

31. *Limonia sylvicola* (Schummel, 1829)

Material examined. Slovenia • 1 male; Stara fužina, Mostnica river; 46.297889°N, 13.886389°E; alt. 600 m; 3 July 2022; leg. C. Quindroit; PCCQ.

Comments. A common species.

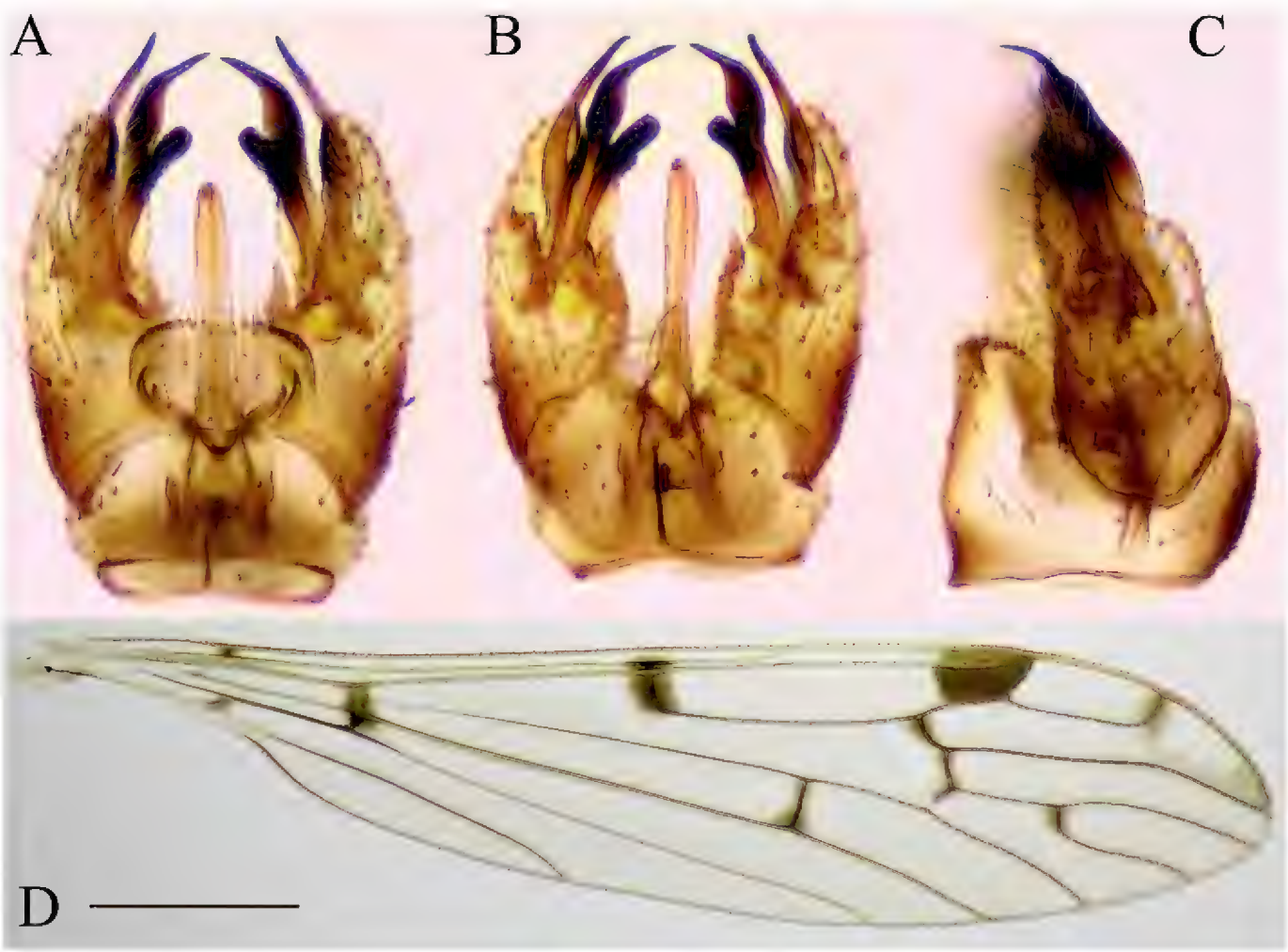

Figure 15. *Idiocera* (*Idiocera*) *lackschewitzi*, specimen: Bosnia and Herzegovina, Ulog, Neretva at Ulog Camp site (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

32. *Limonia taurica* (Strobl, 1895)

Material examined. Slovenia • 1 male; Stara fužina, Puncrat; 46.303778°N, 13.839917°E; alt. 1400 m; 2 July 2022; leg. C. Quindroit; PCCQ.

Comments. A widely distributed species, known from several European countries and from China.

33. *Limonia phragmitidis* (Schrank, 1781)

Material examined. Croatia • 1 male; Zagreb, Stream Jelenovac; 45.82306°N, 15.95235°E; alt. 170 m; 10 April 2020; leg. M. Ivković; CKLP.

Comments. A very common and widely distributed species.

34. *Lipsothrix nobilis* Loew, 1873

Material examined. Croatia • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 29 May 2015; emergence trap, P5; leg. M. Ivković; CKLP.

Comments. A common Western Palaearctic species, larvae and pupae associated with partly submerged decaying larger wood in streams and rivers (Hancock et al. 2009).

35. *Lipsothrix remota* (Walker, 1848)

Material examined. Croatia • 1 male; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 30 June 2021; emergence trap, P5; leg. M. Ivković; UZC • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Spring of Crna rijeka, Plitvice Lakes; 44.83714°N, 15.60752°E; alt. 680 m; 30 June 2021; emergence trap, P6 • 1 female; same locality; 29 September 2021; emergence trap, P5; leg. M. Ivković; CKLP • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 30 June 2014; emergence trap, P4 • 1 male; same locality; 30 June 2015; emergence trap, P6; leg. M. Ivković; CKLP.

Comments. A common European species with similar habitat reference as *Lipsothrix nobilis* (Hancock et al. 2009).

36. *Molophilus* (*Molophilus*) *aduncus* Starý, 1978

Material examined. Albania • 1 male; Dibër, Fushë-Bulqizë; 41.5279°N, 20.2983°E; alt. 780 m; 26 July 2021; light trap; leg. A. de Ketelaere; PCMCO.

Comments. A very rare species, reported only from Andorra, Bulgaria, Spain, and Russia: North Caucasus in Europe. First record from Albania.

37. *Molophilus* (*Molophilus*) *appendiculatus* (Staeger, 1840)

Material examined. Croatia • 1 male; Krapinsko-Zagorska county, Mountain Ivanščica, Spring Podbel; 46.20111°N, 16.25611°E; alt. 346 m; 15 July 2014; leg. M. Ivković; CKLP. **Slovenia** • 2 males; Vintgar gorge; 46.39333°N, 14.086056°E; alt. 600 m; 1 July 2022; leg C. Quindroit; PCCQ.

Comments. Common species that occurs in several terrestrial and semi-aquatic habitats.

38. *Molophilus* (*Molophilus*) *bifidus* Goetghebuer, 1920

Material examined. Albania • 3 males; Dibër, Fushë-Bulqizë; 41.5279°N, 20.2983°E; alt. 780 m; 26 July 2021; light trap; leg. A. de Ketelaere; PCMCO.

Comments. A common species, associated with springs and small headwaters.

39. *Molophilus* (*Molophilus*) *corniger* de Meijere, 1920

Material examined. **Croatia** • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 30 June 2014; emergence trap, P4; leg. M. Ivković; CKLP. **Slovenia** • 1 male; Savinjska, Ljubno ob Savinji; 46.332°N, 14.839°E; alt. 490 m; 23 July 2022; leg. M.C. de Haas; PCMCO.

Comments. Common European species; however, these are the first records from Croatia and Slovenia.

40. *Molophilus* (*Molophilus*) *crassipygus* de Meijere, 1918

Material examined. **Bosnia and Herzegovina** • 1 male; Ulog, Neretva at Ulog Camp site; 43.41714°N, 18.31205°E; alt. 650 m; 28 June 2022; leg. W. Graf; CKLP.

Comments. Another relatively common European species, which is recently reported from several countries from the Balkan (Kolcsár et al. 2015b, 2021). Here we report it for the first time from Bosnia and Herzegovina.

41. *Molophilus* (*Molophilus*) *lackschewitzianus* Alexander, 1953

Material examined. **Slovenia** • 3 males; Vintgar gorge; 46.39333°N, 14.086056°E; alt. 600 m; 1 July 2022; leg C. Quindroit; PCCQ.

Comments. A relatively rare species, associated with calcareous habitats (Stubbs 2021), but rarely it can also be found around non-calcareous streams (Kolcsár and Soltész 2018).

42. *Molophilus* (*Molophilus*) *medius* de Meijere, 1918

Material examined. **Slovenia** • 3 males, 1 female; Savinjska, Ljubno ob Savinji; 46.332°N, 14.839°E; alt. 490 m; 8 August 2020; light trap; leg. M.C. de Haas; PCMCO • 1 male; Savinjska, Ljubno ob Savinji; 46.332°N, 14.839°E; alt. 490 m; 22 July 2022; light trap; leg. M.C. de Haas; PCMCO.

Comments. A common and widespread species in Europe, here reported for the first time from Slovenia.

43. *Molophilus* (*Molophilus*) *propinquus* (Egger, 1863)

Material examined. **Bosnia and Herzegovina** • 1 male; Ulog, Ulog on Neretva River; 43.42414°N, 18.30837°E; alt. 640 m; 29 June 2022; leg. W. Graf; CKLP.

Comments. Common and usually abundant species around wet habitats, especially along rivers and streams.

44. *Molophilus* (*Molophilus*) *pullus* Lackschewitz, 1927

Fig. 16

Material examined. **Croatia** • 1 male, 2 females; Zagreb, Stream Jelenovac; 45.82306°N, 15.95235°E; alt. 170 m; 10 April 2020; leg. M. Ivković; CKLP.

Comments. A rarer *Molophilus* species, known only from few European countries. First record from Croatia. Adults usually found around small muddy springs and slowly flowing streams with rich organic muds.

45. *Neolimonia dumetorum* (Meigen, 1804)

Material examined. **Croatia** • 2 females; Ličko-Senjska county, near Baške Oštarije, Velebit NP; 44.545°N, 15.152°E; alt. 980 m; 30 July 2021; sweep net; leg. M.C. d'Oliveira; PCMCO. **Slovenia** • 1 male; Gorenjska, near Spominski Park; 46.336°N, 14.573°E; alt. 730 m; leg. M.C. de Haas; PCMCO.

Comments. A common species.

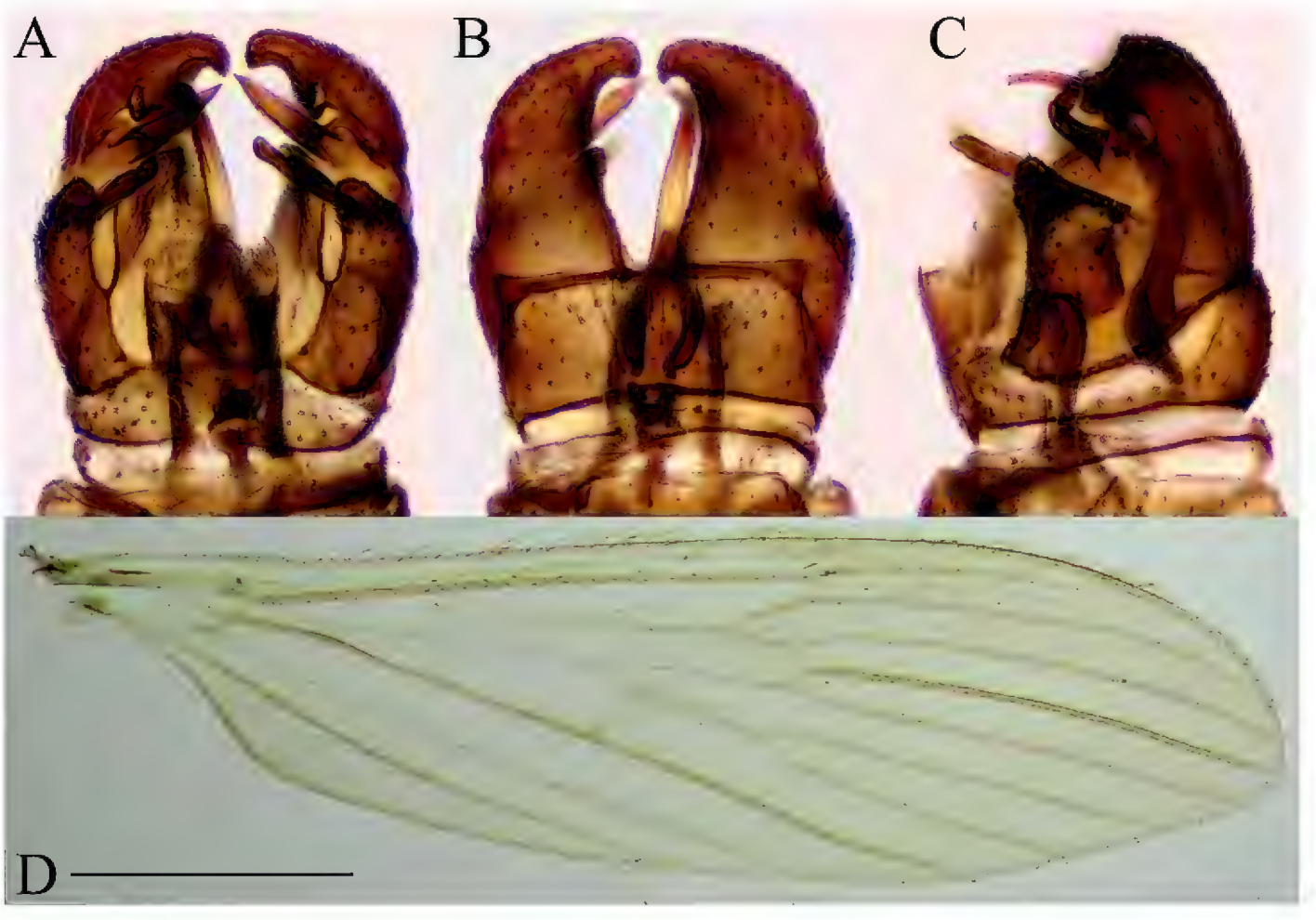

Figure 16. *Molophilus* (*Molophilus*) *pullus*, specimen: Croatia, Zagreb, stream Jelenovac (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

46. *Orimarga* (*Orimarga*) *juvenilis* (Zetterstedt, 1851)

Material examined. Slovenia • 1 male, 1 female; Gorenjska, Kranjska Gora, Gozd Maturljek, in small woodland near river Sava; in small woodland on the banks of river Sava; 46.483°N, 13.838°E; alt. 740 m; 20 July 2019; light trap; leg. M.C. d'Oliveira; PCMCO.

Comments. A rare species, known from few European countries. *Orimarga* species are associated with hygropetric calcareous habitats. First record from Slovenia.

47. *Orimarga* (*Orimarga*) *virgo* (Zetterstedt, 1851)

Material examined. Slovenia • 1 male; Vintgar gorge; 46.393333°N, 14.086056°E; alt. 600 m; 1 July 2022; leg C.Quindroit; PCCQ.

Comments. Another rare *Orimarga* species.

48. *Ormosia* (*Ormosia*) *albitibia* Edwards, 1921

Material examined. Slovenia • 1 male; Krma Valley; 46.370556°N, 13.88916°E; in low alder tree area, in a rockslide; alt. 900 m; 6 July 2022; leg. C. Quindroit; PCCQ.

Comments. A rare species, usually found around mountain streams in Central Europe. First record from Slovenia.

49. *Ormosia* (*Ormosia*) *lineata* (Meigen, 1804)

Fig. 17

Material examined. Croatia • 1 male, 1 female; Zagreb, Stream Jelenovac; 45.82306°N, 15.95235°E; alt. 170 m; 10 April 2020; leg. M. Ivković; CKLP.

Comments. A common early spring species usually found around muddy, sandy springs and smaller streams. First record from Croatia.

50. *Paradelphomyia fuscula* (Loew, 1873)

Material examined. Croatia • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 30 June 2021; emergence trap, P7; leg. M. Ivković; CKLP.

Comments. A species associated with various aquatic and semi-aquatic habitats. First record from Croatia.

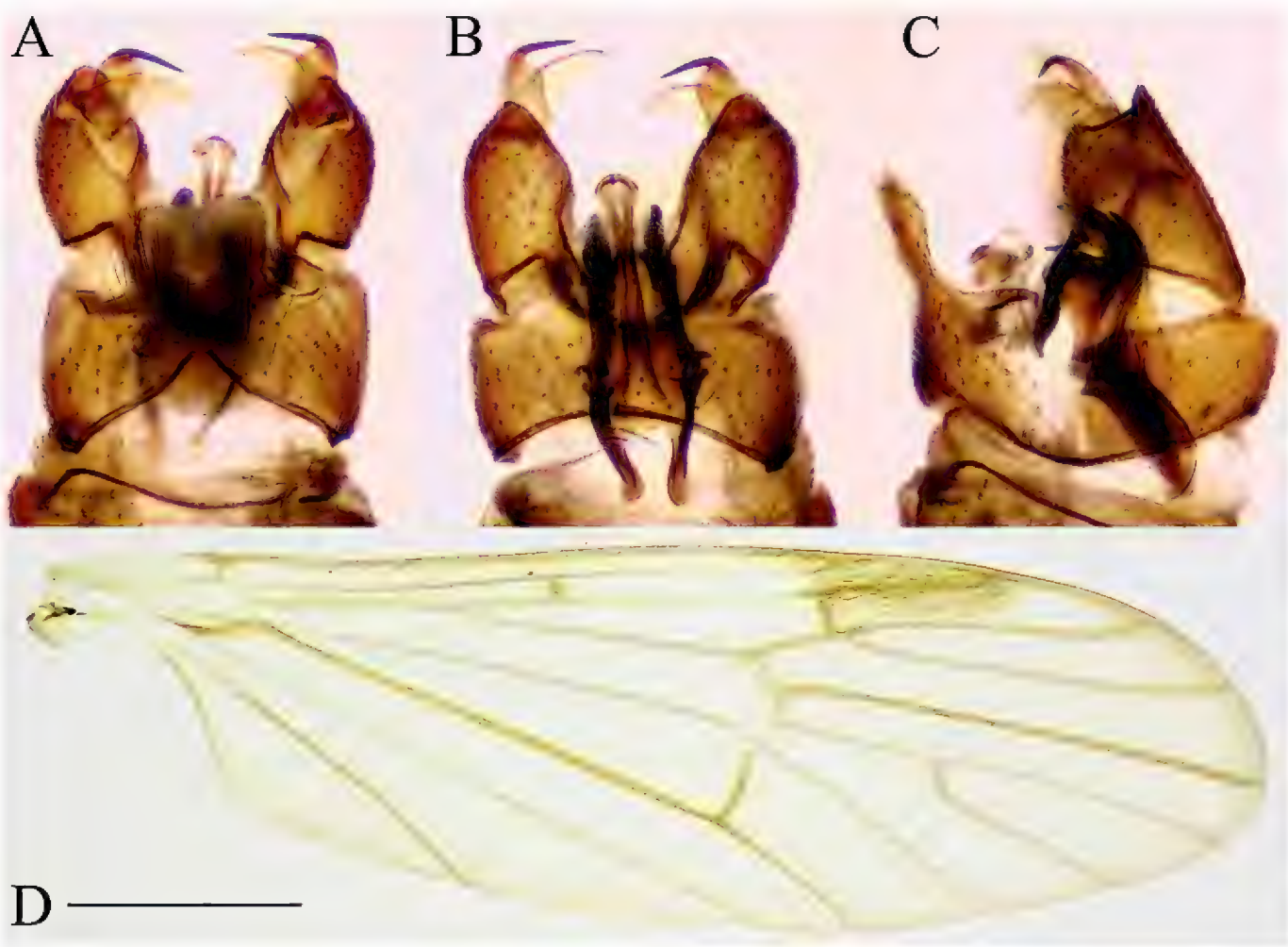

Figure 17. *Ormosia* (*Ormosia*) *lineata*, Specimen: Zagreb, stream Jelenovac (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

51. *Paradelphomyia senilis* (Haliday, 1833)

Material examined. Croatia • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 30 June 2015; emergence trap, P6; leg. M. Ivković; CKLP.

Comments. A widespread species in Europe.

52. *Prionolabis hospes* (Egger, 1863)

Material examined. Slovenia • 1 male; Vintgar gorge; 46.393333°N, 14.086056°E; alt. 600 m; 1 July 2022; leg C. Quindroit; PCCQ.

Comments. A common species associated with deciduous forests.

53. *Symplecta* (*Psiloconopa*) *stictica stictica* (Meigen, 1818)

Material examined. Albania • 1 female; Shkodër, Lëpushë; 42.5291°N, 19.72654°E; alt. 1290 m; 3 August 2021; leg. A. de Ketelaere; PCMCO.

Comments. A common and widespread species, occurs in different semi-aquatic habitats, also tolerant of salty soils.

54. *Thaumastoptera* (*Thaumastoptera*) *calceata* Mik, 1866

Material examined. **Bosnia and Herzegovina** • 1 male; Ulog, Ulog on Neretva River; 43.42414°N, 18.30837°E; alt. 640 m; 29 June 2022; leg. W. Graf; CKLP. **Croatia** • 1 male; Ličko-Senjska county, Rastovača, Tufa barrier Kozjak-Milanovac, Plitvice Lakes; 44.89416°N, 15.60888°E; alt. 545 m; 30 June 2015; emergence trap, P5 • 1 male; same locality; 30 June 2019; emergence trap, P1; leg. M. Ivković; CKLP.

Comments. A relative rare and tiny species, associated with calcareous rivers and streams usually with sandy banks. First records from Croatia and Bosnia and Herzegovina.

Pediciidae

55. *Dicranota* (*Paradicranota*) *subtilis* Loew, 1871

Fig. 18

Material examined. **Croatia** • 1 male; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 28 April 2017; emergence trap, P5 • 1 male; same locality; 29 October 2020; emergence trap, P5 • 1 male; same locality; 28 October 2021; emergence trap, P1; leg. M. Ivković; CKLP.

Comments. One of the most common *Dicranota* species in Europe, adults frequently collected around different types of small streams and mountain rivers. First records from Croatia.

56. *Pedicia* (*Amalopis*) *occulta* (Meigen, 1830)

Material examined. **Croatia** • 1 female; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 31 March 2014; emergence trap, P5 • 2 males, 2 females; same locality; 30 April 2014; emergence trap, P5 • 2 females; same locality; 30 April 2014; emergence trap, P6 • 1 female; same locality; 29 May 2014; emergence trap, P4 • 1 male; same locality; 30 June 2014; emergence trap, P2 • 1 male; same locality; 30 September 2014; emergence trap, P2 • 1 male; same locality; 29 April 2015; emergence trap, P4 • 1 female; same locality; 29 April 2015; emergence trap, P5 • 1 female; same locality; 30 September 2015; emergence trap, P3 • 1 male; same locality; 31 March 2016; emergence trap, P3 • 1 female; same locality; 31 May 2016; emergence trap, P3 • 1 male; same locality; 31 May 2016; emergence trap, P6 • 1 female; same locality; 31 August 2016; emergence trap, P3 • 1 male, 1 female; same locality; 31 October 2016; emergence trap, P3 • 1 male; same locality; 29 March 2017; emergence trap, P4 • 2 females; same locality; 28 April 2017; emergence trap, P4

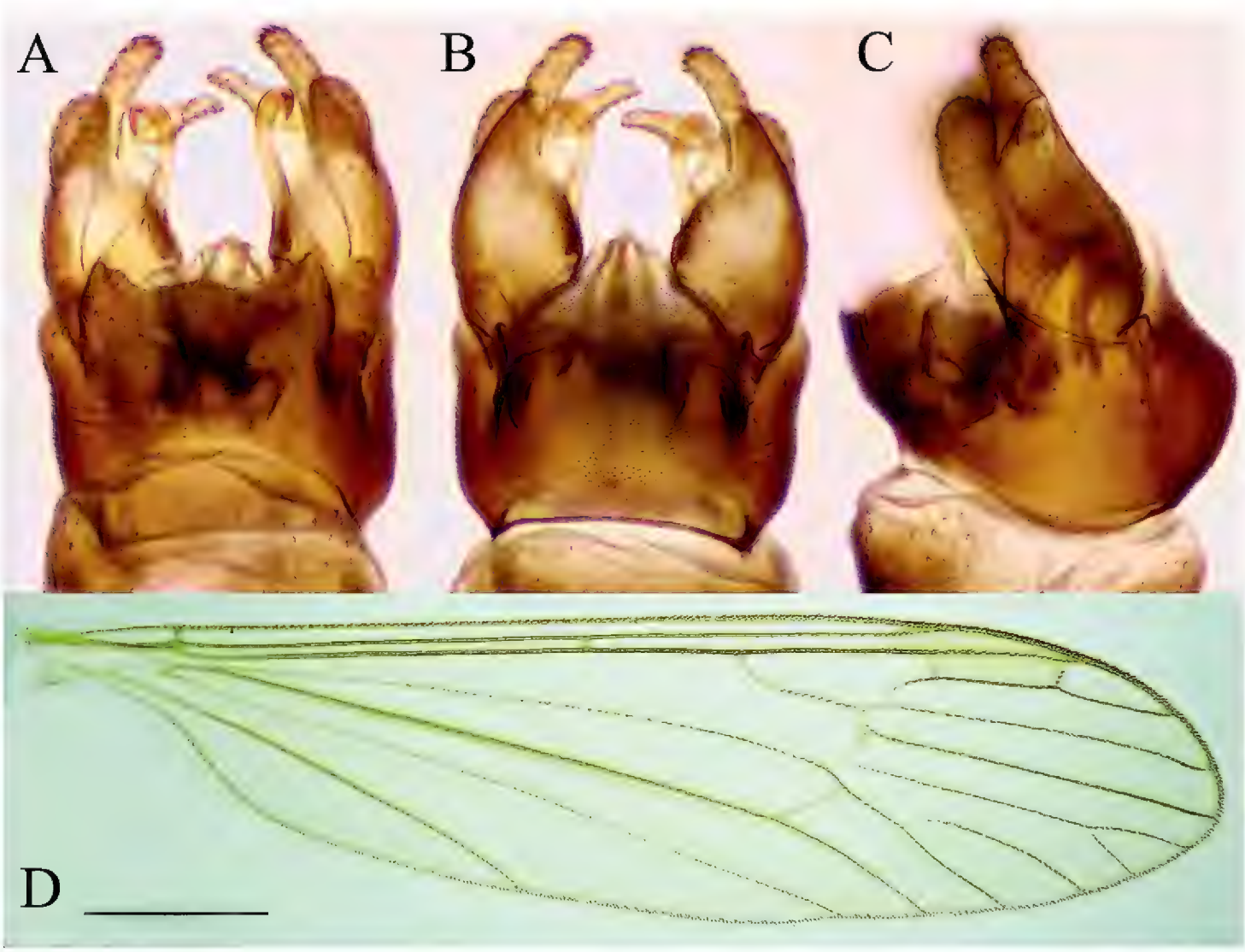

Figure 18. *Dicranota* (*Paradicranota*) *subtilis*, Specimen: Croatia, spring of Bijela rijeka, Plitvice Lakes (CKLP) **A–C** male terminalia **A** dorsal view **B** ventral view **C** lateral view **D** wing. Scale bar: 1 mm (**D**).

• 1 male; same locality; 28 June 2017; emergence trap, P4 • 1 male; same locality; 27 July 2017; emergence trap, P4 • 1 male; same locality; 27 July 2017; emergence trap, P3 • 1 male; same locality; 30 August 2017; emergence trap, P4 • 1 female; same locality; 28 October 2017; emergence trap, P5 • 1 female; same locality; 28 October 2017; emergence trap, P6 • 1 female; same locality; 29 November 2017; emergence trap, P3 • 1 female; same locality; 29 November 2017; emergence trap, P6 • 1 female; same locality; 30 March 2018; emergence trap, P6 • 1 male, 1 female; same locality; 30 April 2018; emergence trap, P6 • 1 male; same locality; 29 June 2018; emergence trap, P5 • 1 female; same locality; 29 June 2018; emergence trap, P6 • 1 male; same locality; 26 July 2018; emergence trap, P6 • 1 female; same locality; 28 May 2019; emergence trap, P5 • 1 female; same locality; 27 July 2019; emergence trap, P4 • 1 male; same locality; 30 April 2020; emergence trap, P5 • 1 female; same locality; 28 May 2020; emergence trap, P6 • 3 males, 3 females; same locality; 29 October 2020; emergence trap, P3 • 1 male; same locality; 28 February 2021; emergence trap, P3 • 1 male; same locality; 30 March 2021; emergence trap, P3 • 1 female; same locality; 29 April 2021; emergence trap, P3 • 1 male; same locality; 29 April 2021; emergence trap, P2 • 1 female; same locality; 29 April 2021; emergence trap, P5 • 1 male; same locality; 29 May 2021; emergence trap, P3 • 1 male, 1 female; same locality; 29 July 2021; emergence trap, P3 • 1 male; same

locality; 29 July 2021; emergence trap, P6 • 1 female; same locality; 31 August 2021; emergence trap, P3 • 1 female; same locality; 31 August 2021; emergence trap, P6 • 1 male; same locality; 28 October 2021; emergence trap, P6 • 1 male; same locality; 28 October 2021; emergence trap, P3 • 1 female; same locality; 29 November 2021; emergence trap, P3; leg. M. Ivković; CKLP • 1 male, 1 female; Ličko-Senjska county, Plitvica Selo, Stream Plitvica, Plitvice Lakes; 44.90222°N, 15.6075°E; alt. 555 m; 30 September 2008; emergence trap, P3 • 5 males, 2 females; same locality; 30 September 2008; emergence trap, P2 • 1 female; same locality; 30 October 2008; emergence trap, P2; leg. M. Ivković; UZC.

Comments. A widely distributed species, one of the most common and abundant species occurring together with *Dicranomyia didyma* in samples collected with emergence traps at Plitvice Lakes.

57. *Pedicia* (*Crunobia*) *littoralis* (Meigen, 1804)

Material examined. Slovenia • 1 male; Kobarid, Kozjak waterfall; 46.259139°N, 13.590056°E; alt. 360 m; 9 July 2022; leg C. Quindroit; PCCQ.

Comments. A widely distributed *Crunobia* species, can be found around small, cold-water streams. The males swarm above littoral vegetation.

58. *Pedicia (Crunobia) straminea* (Meigen, 1838)

Material examined. Slovenia • 1 male; Vintgar gorge; 46.393333°N, 14.086056°E; alt. 600 m; 1 July 2022; leg C. Quindroit; PCCQ.

Comments. Another common and widely distributed *Crunobia* species, can be found throughout a wider range of habitats than *P. littoralis*, including springs and small, cold-water rivers.

59. *Pedicia* (*Pedicia*) *rivosa* (Linnaeus, 1758)

Material examined. Croatia • 1 female; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 29 May 2018; emergence trap, P5 • 1 female; same locality; 28 June 2020; emergence trap, P1; leg. M. Ivković; CKLP.

Comments. A relative common and easily recognizable species. Larvae are aquatic and the species can be found around springs and streams, from lowlands to high mountains. Appears to be a very rare species in southern part of Europe and found only in humid mountains in the Western Balkans. Here we present the first records from Croatia.

60. *Tricyphona* (*Tricyphona*) *immaculata* (Meigen, 1804)

Material examined. Croatia • 1 male; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 03 January 2019; emergence trap, P4 • 2 males; same locality; 29 October 2020; emergence trap, P5 • 1 male; same locality; 28 October 2021; emergence trap, P1; leg. M. Ivković; CKLP • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 29 October 2020; emergence trap, P3 • 1 male; same locality; 29 September 2021; emergence trap, P6; leg. M. Ivković; UZC.

Comments. A relative common and wide distributed species, associated with different types of aquatic and semi-aquatic habitats.

Tipulidae

61. *Ctenophora* (*Cnemoncosis*) *ornata* Meigen & Wiedemann, 1818

Material examined. Croatia • 1 female; Zadarska county, Benkovac, Pristeg; 43.96214°N, 15.62876°E; alt. 170 m; 01 April 2021; leg. T. Dražina; CKLP.

Comments. Conspicuous species associated with old decaying standing wood.

62. *Nephrotoma appendiculata appendiculata* (Pierre, 1919)

Material examined. Croatia • 1 male, 1 female; Zagrebačka county, Kuče, Chanel Sava Odra; 45.6725°N, 16.135278°E; alt. 98 m; 14 April 2011; leg. M. Ivković; CKLP.

Comments. A very common species.

63. *Nephrotoma cornicina cornicina* (Linnaeus, 1758)

Material examined. Slovenia • 1 male; Češnjica; 46.296667°N, 13.948917°E; alt. 600 m; 1 July 2022; leg. C. Quindroit; PCCQ.

Comments. A very common species.

64. *Nephrotoma flavescens* (Linnaeus, 1758)

Material examined. Bosnia and Herzegovina • 1 male; Ulog, Ulog on Neretva River; 43.42414°N, 18.30837°E; alt. 640 m; 29 June 2022; leg. W. Graf; CKLP.

Comments. A common species.

65. *Nephrotoma lamellata lamellata* (Riedel, 1910)

Material examined. **Slovenia** • 1 male; Češnjica; 46.296667°N, 13.948917°E; alt. 600 m; 1 July 2022; leg. C. Quindroit; PCCQ.

Comments. A less common *Nephrotoma* species.

66. *Nephrotoma quadrifaria quadrifaria* (Meigen, 1804)

Material examined. **Bosnia and Herzegovina** • 1 female; Cerova, Cerova on Neretva; 43.37887°N, 18.35621°E; alt. 695 m; 30 June 2022; leg. M. Ivković; CKLP.

Comments. A common species.

67. *Tipula* (*Acutipula*) *balcanica* Vermoolen, 1983

Material examined. **Croatia** • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Tufa barrier Labudovac, Plitvice Lakes; 44.87138°N, 15.59972°E; alt. 630 m; 30 June 2019; emergence trap, P6; leg. M. Ivković; CKLP.

Comments. A relatively common and conspicuous species in the Balkans and some neighboring countries.

68. *Tipula* (*Lunatipula*) *fascipennis* Meigen, 1818

Material examined. **Bosnia and Herzegovina** • 1 male; Ulog, Ulog on Neretva River; 43.42414°N, 18.30837°E; alt. 640 m; 29 June 2022; leg. W. Graf; CKLP.

Comments. A common species.

69. *Tipula* (*Lunatipula*) *helvola* Loew, 1873

Material examined. **Slovenia** • 1 male; Ljubljana, Castle; 46.048°N, 14.509778°E; alt. 340 m; 30 June 2022; leg. C. Quindroit; PCCQ.

Comments. A common species.

70. *Tipula* (*Lunatipula*) *truncata* Loew, 1873

Material examined. **Bosnia and Herzegovina** • 1 male, 2 females; Ulog, Ulog on Neretva River; 43.42414°N, 18.30837°E; alt. 640 m; 29 June 2022; leg. W. Graf; CKLP.

Comments. A common species in central and southeastern Europe, prefers drier habitats.

71. *Tipula* (*Pterelachisus*) *glacialis* (Pokorny, 1887)

Material examined. Slovenia • 1 male; Krnica; 46.37333°N, 13.862528°E; alt. 2000 m; 6 July 2022; leg. C. Quindroit; PCCQ • 2 males; Dom Planika; 46.371417°N, 13.846417°E; alt. 2400 m; 6 July 2022; leg. C. Quindroit; PCCQ • 1 male; Rudno Polje, Sreniski preval; 46.360889°N, 13.894472°E; alt. 1900 m; 3 July 2022; leg. C. Quindroit; PCCQ.

Comments. A rare alpine species, known only from the Alps, Dinaric Alps, and Rila-Rhodope massif.

72. *Tipula* (*Savtshenkia*) *benesignata* Mannheims, 1954

Material examined. Croatia • 1 male; Ličko-Senjska county, Rastovača, Tufa barrier Kozjak-Milanovac, Plitvice Lakes; 44.89416°N, 15.60888°E; alt. 545 m; 28 September 2020; emergence trap, P1; leg. M. Ivković; CKLP

Comments. A relative common autumnal species.

73. *Tipula* (*Savtshenkia*) *cheethami* Edwards, 1924

Material examined. Croatia • 2 males; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 29 May 2018; emergence trap, P5 • 1 male; same locality; 29 May 2018; emergence trap, P5 • 1 male; same locality; 29 May 2021; emergence trap, P6; leg. M. Ivković; CKLP • 1 male; Ličko-Senjska county, Plitvički Ljeskovac, Spring of Crna rijeka, Plitvice Lakes; 44.83714°N, 15.60752°E; alt. 680 m; 29 May 2021; emergence trap, P6; leg. M. Ivković; UZC.

Comments. A rare, late spring species, associated with wet, mossy habitats along rivers and streams. First records from Croatia.

74. *Tipula* (*Savtshenkia*) *rufina rufina* Meigen, 1818

Material examined. Croatia • 1 male; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 31 October 2016; emergence trap, P6 • 2 males; same locality; 30 September 2019; emergence trap, P5 • 3 males, 1 female; same locality; 29 September 2021; emergence trap, P6; leg. M. Ivković; CKLP • 1 male; Ličko-Senjska county, Rastovača, Tufa barrier Kozjak-Milanovac, Plitvice Lakes; 44.89416°N, 15.60888°E; alt. 545 m; 28 September 2020; emergence trap, P3 • 1 female; same locality; 29 October 2020; emergence trap, P5; leg. M. Ivković; UZC.

Comments. A common and widespread species, known from different habitats.

75. *Tipula* (*Vestiplex*) *hortorum* Linnaeus, 1758

Material examined. Croatia • 1 female; Ličko-Senjska county, Končarev Kraj, Spring of Bijela rijeka, Plitvice Lakes; 44.83472°N, 15.56194°E; alt. 720 m; 28 June 2017; emergence trap, P5; leg. M. Ivković; CKLP • 1 male; Grad Zagreb County, Zagreb, Stream Jelenovac; 45.82306°N, 15.95235°E; alt. 170 m; 10 April 2020; leg. M. Ivković; CKLP.

Comments. A common species, usually found in wet forest habitats.

76. *Tipula* (*Vestiplex*) *excisa excisa* Schummel, 1833

Material examined. Slovenia • 1 male; Krnica; 46.373333°N, 13.862528°E; alt. 2000 m; 6 July 2022; leg. C. Quindroit; PCCQ.

Comments. A mountain alpine species.

77. *Tipula* (*Yamatotipula*) *lateralis* Meigen, 1804

Material examined. Bosnia and Herzegovina • 1 male; Ulog, Ulog on Neretva River; 43.42414°N, 18.30837°E; alt. 640 m; 29 June 2022; leg. W. Graf; CKLP.

Comments. A very common aquatic/semi-aquatic species.

Discussion

As many other publications have previously demonstrated, the biodiversity of the Balkans remains insufficiently investigated, and the local fauna consists of far more species than what is currently reported (e.g., Ivković et al. 2013; Kvifte et al. 2013; Pont and Ivković 2013; Ivković and Plant 2015; Ivković and Pont 2015; Ivković et al. 2016; Kvifte and Ivković 2018; Keresztes et al. 2018b). Despite historical and more recent publications (Bilalli et al. 2021; de Jong et al. 2021; Kolcsár et al. 2015a, b, 2017a, b, 2018a, b, 2023; Keresztes et al. 2018a, b; Starý 2012) the cranefly fauna of the Western Balkans is still poorly known. In this study we report two species for the first time from Albania, eight from Bosnia and Herzegovina, twelve from Croatia, and seven from Slovenia. Most of the newly reported species are common and widely distributed in Europe, highlighting how understudied the local fauna is. However, some rare and poorly known species such as *Antocha alpigena*, *Ellipteroides limbatus*, *Idiocera jucunda*, *I. lackschewitzi*, and *Orimarga juvenilis* etc. were also collected, primarily around natural streams and rivers. Furthermore, a new species, *Baeoura neretvaensis* sp. nov. is described. *Baeoura* is considered as a rare group in the Western Palaearctic, with a distribution mainly restricted to the Mediterranean

region (Fig. 5). Besides the original species descriptions (Kuntze 1914; Mendl and Tjeder 1974, 1976; Starý 1981; Krzemiński and Starý 1984; Mendl 1985, 1986; Driauach and Belqat 2015; Hancock 2020) only few additional faunistic records are known from the Western Palearctic (Erhan-Dincă 1984; Simova-Tosic 1992; Starý and Oosterbroek 1996; Koç 2004; Ujvárosi 2005; Starý 2014; Oosterbroek et al. 2020; Kolcsár et al. 2021).

The biology and ecology of *Baeoura* species are poorly known or even unknown. Larvae and pupae of the South African species *B. claripennis* (Alexander, 1921) were found on the surface of smaller boulders, ~ 30 cm deep in a swiftly flowing stream and the imago was collected from vegetation along the stream (Wood 1952). Adults of *B. malickyi*, *B. schachti* Mendl, 1986, and *B. armata* Mendl, 1985 were collected around small streams with clear water (Mendl and Tjeder 1976; Mendl 1985, 1986; Kolcsár et al. 2021). *Baeoura rotherayi* and *B. szadziewskii* Krzemiński & Starý, 1984 were also collected along streams (Krzemiński and Starý 1984; Hancock 2020). Driauach and Belqat (2015) collected *B. ebenina* Starý, 1981 and *B. staryi* along partly dried out rivers, with minimal water flow in Morocco. Adults of *B. alexanderi* Mendl & Tjeder, 1974 in Crete and *B. longefiligera* Mendl, 1986 in Spain were found in dry valleys of very small streams (Mendl and Tjeder 1974; Mendl 1986). It is assumed that larvae of Western Palaearctic species are also aquatic or semi-aquatic (Mendl and Tjeder 1976; Erhan-Dincă 1984). Adults of *B. neretvaensis* sp. nov. were collected around fast flowing gravelly/rocky streams and rivers (Fig. 4). *Baeoura malickyi* and *B. neretvaensis* sp. nov. were collected from the same habitat at the same time along Sava River in Slovenia (Fig. 5, see also Kolcsár et al. 2021). Based on the above-mentioned observations, the European *Baeoura* species are rheobiont, larvae most probably occurring in fast flowing streams and rivers. Some species seem to be adapted to fluctuating water conditions, tolerating the partly or fully drying up of streams and rivers during the dry periods in the Mediterranean area. The adults migrate farther from the larval habitats along valleys. Based on literature data and our observations, *Baeoura* species are attracted by light sources and surveillance traps could be effective methods to collect these small-sized and poorly known species.

Conclusions

At this time of intensified climate change, that causes streams and rivers to dry up, and the general increasing anthropogenic influences on freshwater habitats, we stipulate that it is of utmost importance to protect the streams and rivers as much as we possibly can. The Western Balkans is a part of Europe with still relatively little human impact and therefore our efforts on exploring and studying this area need to be much more than they are at present. Only by increasing our knowledge of the diversity of this area can we help to protect it more thoroughly. It truly deserves to be protected, so it can remain the Blue Heart of Europe.

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